

**COMPILATION OF PUBLIC COMMENTS
ON ENVIRONMENTAL MANAGEMENT DISPOSAL FACILITY
PROPOSED PLAN (DOE/OR/01-2695&D2/R1) RECEIVED DURING
PUBLIC COMMENT PERIOD SEPT 8, 2018 TO JAN 9, 2019**

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Comment 1: Comment from City of Oak Ridge

On June 7, 2018, Mr. Adler transmitted a copy of the subject Proposed Plan to the City for review. The document has been reviewed by the City's Environmental Quality Advisory Board (EQAB) and by the City's independent technical consultant, The Ferguson Group. Copies of these reports are attached for your review.

Aside from the serious technical concerns that must be addressed, the proposed plan lacks any analysis related to Community Acceptance, one of the nine criteria upon which federal law requires CERCLA decisions to be based. Many of these issues were identified in the City's *Community Impact Assessment*, completed in September 2015, discussed in several public meetings, and transmitted to the DOE for consideration and incorporation into the CERCLA review. We believe this is a serious oversight.

The City appreciates the opportunity to review and respond to the draft document during its development. However, with many questions arising on topics ranging from mercury disposal to site characterization, I cannot recommend supporting a new nuclear waste disposal facility in our community without detailed clarifications to questions outlined in the attached report relating to mercury treatment waste disposal transport out West and concrete explanation of the exemptions requested and their impacts upon the Oak Ridge community. As City Manager, I am assessing a project that will impact generations of Oak Ridgers for decades to come.

Comment 2: Comments from The Ferguson Group (TFG).

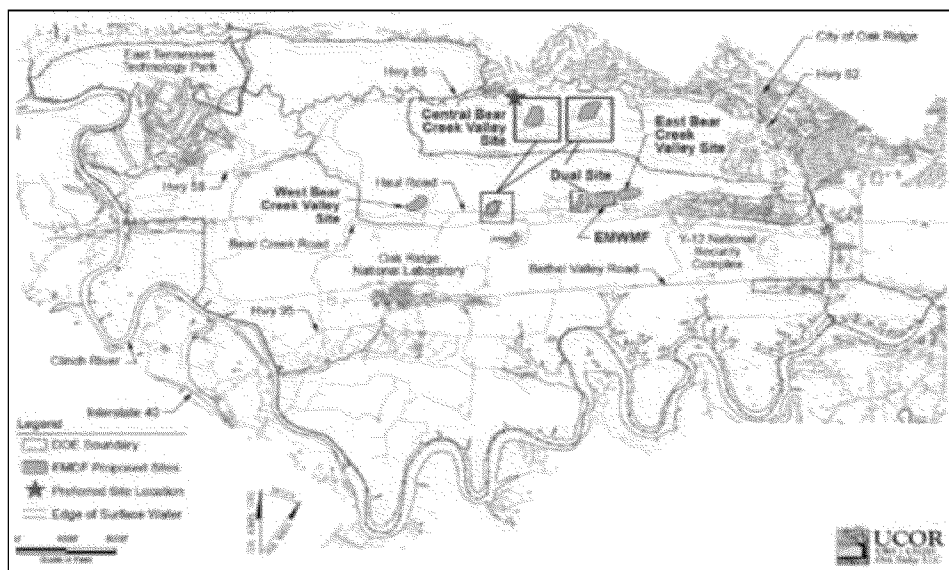
Comment 2.1: Page 4. Land Use Designations. In this section of the Proposed Plan DOE notes that the EMWMF was located in the East Bear Creek Valley per the recommendation of the End Use Working Group (EUWG) – a group composed of citizens from diverse stakeholder organizations who were asked to develop recommendations for end uses of contaminated areas on the ORR. Their recommendation at the time was that any CERCLA waste facility should be located on or adjacent to an area that is already contaminated and used for long-term waste disposal. Absent from this section of the Proposed Plan is DOE's land use description for the Central Bear Creek Valley (CBCV) which is DOE's preferred location for the EMDF site 7c. Site 7c is located in the CBCV approximately 1.5 miles west of the EMWMF. It would be constructed in a Greenfield (Zone 2 of Bear Creek Valley), where the current designated future land use is Recreational and the future land use is Unrestricted. If this site is the selected alternative, a change to the future land use to DOE-Controlled Industrial would be required. In addition, on Page 1 of the Proposed Plan DOE indicates that site 7c is located in an area not considered for reindustrialization and ruse [sic]. This statement contradicts the position of the EUWG and DOE's support of such a position.

Comment 2.2: Page 6. Site Characteristics. DOE indicates that the Bear Creek Valley is the most appropriate location for construction of an on-site waste disposal facility. As part of the 2017 RI/FS, DOE evaluated several locations for the construction of the EMDF. The site locations are shown in the figure below. DOE indicates that these site areas have been thoroughly tested over the past three decades and the Department directs the reader to Appendix E in the completed in 2017 RI/FS to review the summary of investigations completed.

DOE also then indicates that further data collection efforts will be undertaken at site 7c to further characterize the site during wet and dry seasons. In the event the data indicates that site suitability will require changes to the EMDF design, it will be documented in the Administrative Record and possible issuance of a revised Proposed Plan. DOE also indicates that a "buffer area" will be maintained between site 7c and the Maynardville Limestone formation which is a karst forming geologic unit. Further on Page 8, DOE indicates that "a preliminary review of the TM indicates that the conceptual design of the

EMDF....may need to be revised to accommodate the new information on the site hydrology and to satisfy the threshold CERCLA criteria.”

The above statements are contradictory. First, DOE indicates that site 7c is the most appropriate location for the EMDF, but then states that more study is required and the landfill design needs to be changed. A site should not be characterized as most appropriate if pertinent data has not been collected and the design has to change.



Comment 2.3: Page 9 and 14. The EMDF has not been designed to be in compliance with Toxic Substances Control Act (TSCA) landfill siting requirements. On Page 9, DOE indicates that the EMDF will be designed to accept TSCA waste. On Page 14, DOE indicates its intention to request a waiver of the TSCA landfill siting requirement with respect to separation of the landfill liner from the historical high water table (i.e., groundwater). TSCA requires that there be no hydraulic connection between the site and standing or flowing surface water and the bottom of the landfill liner system or, natural in-place soil barrier of a chemical waste landfill be at least 50 feet above the historical high water table (40 CFR 761.75[b][3]). Construction of a disposal facility anywhere in Bear Creek Valley would not meet this requirement. A TSCA waiver from this requirement will be required under that statute for all of the onsite alternatives. Such a waiver is granted through 40 CFR 761.75(c)(4) by providing “...evidence to the EPA Regional Administrator that operation of the landfill will not present an unreasonable risk of injury to health or the environment from polychlorinated biphenyls..[sic]”

In addition to DOE seeking a waiver from the aforementioned TSCA provision, the Department has indicated that it will seek an exemption under the State of Tennessee’s Radioactive Waste Disposal Rule. TDEC 0400-20-11-.17[1] [h]) [sic] requires that the hydrogeologic unit used for disposal shall not discharge groundwater to the surface within the disposal site. At each alternative location in Bear Creek Valley, groundwater discharges to the surface within the proposed disposal site and will not meet this requirement. An exemption under the state rules will be requested by DOE, as allowed through the state rule TDEC 0400-20-04-.08, whereby the Division of Radiological Health (Department) may “...grant exemptions, variances, or exceptions from the requirements of these regulations which are not prohibited by statute and which will not result in undue hazard to public health and safety or property.”

TFG has commented extensively on prior DOE Proposed Plans and Remedial Investigations for ORR waste disposal at locations that fail to meet both the TSCA and TDEC siting requirements for separation of the landfill liner to the high water table, or in the case of the TDEC rule, disallowance of sites where the groundwater media is discharging to the ground surface. Our concerns remain that the exemption and waiver that DOE seeks are for the disposal sites for low-level nuclear and hazardous wastes that will remain toxic to human beings, fauna and invertebrates for thousands of years. TFG also does not support DOE's contention that engineering underdrains beneath the landfill to lower the groundwater table should be employed at this type of facility. DOE has not made the case that the underdrains won't become "clogged" at some time in the future which would in turn impact the viability of the waste cell(s) to effectively contain waste from release to the environment. In our opinion, the shallow groundwater conditions that are pervasive in the Bear Creek Valley makes this area not viable for placement of a low-level nuclear and hazardous waste landfill.

Comment 2.4: Page 13. Incomplete information provided in the Proposed Plan for wastewater treatment systems for the EMDF. DOE has not provided sufficient information on support systems that will be needed for the EMDF operation (i.e., wastewater management ponds, treatment systems, utilities, roads). DOE indicates that a wastewater treatment system will be constructed, however, no other information is provided.

TFG has documented the significant problems DOE experienced with support operations at the EMWMF facility in its report to the City on the "Remedial Investigation/Feasibility Study (RI/FS) for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Oak Ridge Reservation (ORR) Waste Disposal Oak Ridge, Tennessee - DOE/OR/01-2535&D3." The City should be particularly concerned with runoff into the Bear Creek from leachate that is contaminated with Mercury. DOE should be required to produce these documents related to support systems for the EMDF for public inspection prior to issuance of the Proposed Plan.

DOE has provided information on Page 16 of the Proposed Plan on Onsite Support Facilities described as the Trans-load facility and the Size-reduction facility. Additional description of these facilities should also be included in the Proposed Plan. For example, the description, capabilities and capacities of both the Size-reduction and Trans-load facility are not included in the document.

Comment 2.5: Page 13. Landfill Cover System. DOE asserts that land use controls that are adopted would restrict access to the site and prohibit actions that could penetrate the cover and expose the waste in the closed landfill. This is a highly optimistic perspective that also assumes the landfill cover and other engineered features incorporated into the landfill will perform as designed for any extended period. See "Compacted Soil Barriers at Abandoned Landfill Sites Are Likely to Fail in the Long Term," by Glenn W. Suter, Robert J. Luxmoore, and Ellen D. Smith, Journal of Environmental Quality 22(2), January 1993.

Comment 2.6: Page 14. Size Reduction Facility for Hybrid Disposal Alternative. DOE indicates that due to the limited capacity of the onsite disposal element of this alternative, a size reduction facility to reduce disposal volumes has been added to the onsite portion of the Hybrid Disposal Alternative. If a size-reduction facility would be needed for the Hybrid Disposal Alternative, why not provide such a facility for all onsite disposal options. Reduction of disposal volume would reduce the adverse effects of an onsite landfill and reduce the possibility that DOE will return 20 years from now and tell the regulators and the public that yet another landfill is needed.

Comment 2.7: Page 15 and Page 20. On-Site versus Off-Site Disposal Costs. DOE asserts that off-site disposal of ORR waste costs \$675 per cubic yard based on 2016 present worth dollars. In contrast, the on-site disposal costs vary in cost based on the amount of volume disposed into the EMDF. The higher the

volume of material disposed of in the EMDF, the lower the cost per cubic yard. DOE has estimated that the cost differential between on-site to off-site disposal is from \$732M - \$928M for on-site disposal and \$1.567M - \$1,799M for off-site disposal.

The cost differential for the off-site disposal option does not include an assessment of cost savings from guaranteeing volumes of material shipped to the off-site disposal landfill. TFG has provided comments on previous DOE documents with respect to disposal of ORR wastes at NRC approved LLW/RCRA waste disposal facilities that are located in Texas and Nevada. These facilities have indicated that if they were provided volumetric assurances from DOE price discounts would be provided. TFG recommends that the City of Oak Ridge request DOE to engage in discussions with the western waste management facilities to determine the cost reduction that could be realized by guaranteeing waste shipment volumes from the ORR.

Comment 2.8: Page 16. Waste Minimization. DOE indicates that for any onsite location selected for pursuit as the remedy, the ROD will contain a commitment to waste minimization. It is unclear how DOE would (or could) make a “commitment to waste minimization” and how it could be enforced? DOE has been criticized for failing to minimize waste disposal volume at the EMWMF, thus accelerating the need for additional CERCLA waste disposal capacity. Unless there are specific commitments restricting excessive disposal, how can DOE expect the community and regulators to trust DOE’s commitment?

Comment 2.9: Page 16. Off-Site Disposal Facilities. DOE indicates that any off-site disposal facility must be operated in compliance with all applicable Federal, state, and local regulations; there must be no relevant violations at or affecting the receiving facility. This standard is perfectly reasonable. Why then does not DOE seek the same standard of care at the site 7c EMDF? At site 7c, DOE is seeking regulatory exemptions and waivers as described in comment 3 [2.3].

Comment 2.10: Page 18. Reduction of Toxicity, Mobility, or Volume through Treatment. DOE asserts that onsite disposal alternatives would provide landfill wastewater treatment needed to address hazardous chemicals, and that treatment would reduce contaminants to levels required for discharge. While it is correct to say that the No Action Alternative does not reduce toxicity, mobility or volume through treatment, the same is true for both the onsite and offsite disposal alternatives. The treatment of wastewater generated in the landfill operation is not treatment of the contaminated material to be addressed by the remedial action, but rather treatment of waste generated as part of the action (and since the treatment methods have not been disclosed, it’s not clear whether the treatment would reduce toxicity, mobility or volume).

Comment 2.11: Page 21 State Acceptance of DOE’s Preferred Remedy. The Proposed Plan indicates that TDEC is unable to approve DOE’s preferred remedy of site 7c. TDEC has indicated that it will consider site-specific data, assumptions, and exposure scenarios in evaluating whether the WAC support an onsite disposal alternative that meets CERCLA requirements, remedial action objectives in this Proposed Plan, and performance objectives in Tennessee radiological health rule 0400-20-11-.16. The State will also evaluate potential toxic effects of uranium in addition to potential cancer risk.

TDEC expressed concern that site 7c may not be good candidate [sic] for the construction of the EMDF because of the shallow depth to groundwater from the land surface and the numerous surface water streams that persist in the area. This is a significant concern for TFG because the area is very wet and should not be used as a repository for LLW and hazardous waste. This area would not be approved for landfill siting of a commercial LLW/hazardous waste facility under NRC permitting requirements and can only be approved for placement should TDEC grant a waiver of the Radioactive Waste Disposal Rule, TDEC 0400-20-11-.17[1][h]) [sic] which requires that the hydrogeological unit used for disposal shall not discharge groundwater to the ground surface within the disposal site. At each alternative location in Bear Creek Valley, groundwater discharges to the ground surface within the proposed disposal site and will not

meet this requirement. In addition, DOE would have to grant itself a waiver of the TSCA groundwater separation distance requirement to the bottom of the landfill liner which requires that there can be no hydraulic connection between the site and standing or flowing surface water and that the bottom of the landfill liner system or natural in-place soil barrier of a chemical waste landfill of at least 50 feet above the historical high water table (40 *CFR* 761.75[b][3]).

TDEC also raised concerns with the disposal of Mercury contaminated waste from the EMDF into the Bear Creek, East Fork Poplar Creek and Clinch River which would contaminate fish that people eat and further degrade these water bodies that already fail Tennessee Surface Water Quality Standards for Mercury.

TDEC is concerned with DOE's plan to use underdrains for the EMDF to mitigate the presence of shallow groundwater, creeks, springs and streams that are present on site 7c. TDEC is concerned that these underdrains will clog at some point in the future and will undermine the integrity of the landfill liner system.

TFG concurs with all of the concerns raised by TDEC on the Proposed Plan for the site 7c EMDF. These are significant concerns that raise serious doubt on the viability of constructing the EMDF in the Bear Creek Valley.

Comment 2.12: Page 22. Waste Acceptance Criteria. DOE indicates that Waste Acceptance Criteria (WAC) have not been developed but will be included in the Record of Decision (ROD). This approach of determining WAC following the issuance of the Proposed Plan denies the public the opportunity to understand and to offer comment on the waste that would be permitted to be disposed in the EMDF. DOE should be required to provide in the Proposed Plan a process for characterizing waste that is deemed acceptable for landfill disposal. Specifically, DOE should describe the extent of sampling and testing that would be implemented to verify that waste materials are acceptable for disposal in the EMDF. For example, DOE should include defined intervals for sampling waste materials as well as a description of the material testing program. DOE should also identify certain wastes that will be excluded from disposal in the EMDF. The following are waste streams that should be [sic] excluded from the EMDF:

- Enriched Nuclear Material;
- High Level Waste;
- Transuranic Waste;
- Cylinders containing DUF6 oxides or DUF6;
- Contaminated nickel barrier materials;
- Waste in containers and other non-land-based units from being placed in Corrective Action Management Unit (CAMU);
- Placement of liquids in CAMUs; and
- Placement in a CAMU of wastes that would otherwise be CAMU-eligible.

With respect to the above limitations on waste material handling in a CAMU, TFG notes that DOE would need to secure EPA and TDEC approval to establish a CAMU at the Site 7c EMDF. A request for a CAMU designation was not included in the Proposed Plan, however, in the 2017 DOE Strategic Plan for Mercury Remediation at the Y-12 National Security Complex (Y-12 DOE/OR/01-2605&D2/R1), DOE indicates that it intends to secure regulatory approval for land disposal of treated mercury contamination in the proposed EMDF (Site 7c) pursuant to Resource Conservation and Recovery Act (RCRA) standards.

DOE will also seek TDEC and EPA approval for establishing a CAMU that will facilitate the movement and treatment of mercury contaminants inside the ORR. DOE should specify in the Proposed Plan its intention to either seek regulatory approval for establishing a CAMU at site 7c, or that it will not seek to establish a CAMU. Under either circumstance, DOE should be required to agree to the above noted CAMU restrictions.

DOE has included in the Proposed Plan several waste type generated on the ORR that will be excluded from disposal at a proposed EMDF because they do not meet the anticipated acceptance criteria (e.g., transuranic waste, liquid waste, and hazardous waste that does not meet land disposal restrictions). EMDF disposal restrictions with respect to activity criteria of radiological waste should be further evaluated. Radiological limits must be established and achieved through a rigorous and statistically significant analytical sampling program in order to ensure the prevention of nuclear criticality, including the potential for criticality induced by aqueous transport of disposed materials. There are several parameters that affect the criticality of the system including the following that DOE should incorporate into their EMDF WAC:

- Mass: The probability of fission increases as the total number of fissile nuclei increases.
- Absorption: Absorption removes neutrons from the system. Large amounts of absorbers are used to control or reduce the probability of a criticality.
- Geometry/shape of the fissile material: The shape of the fissile material affects the probability of occurrence of fission events. Large surface areas favor leakage and is safer than small, compact shapes.
- Interaction of units: Two units, which by themselves are sub-critical, could interact with each other to form a critical system.
- Concentration/Density: Neutron reactions leading to scattering, capture or fission reactions are more likely to occur in dense materials.
- Moderation: Neutrons resulting from fission are typically fast (high energy). These fast neutrons do not cause fission as readily as slower (less energetic) ones. Neutrons are slowed down (moderated) by collision with atomic nuclei. The most effective moderating nuclei are hydrogen, deuterium, beryllium and carbon. Hence hydrogenous materials including oil, polyethylene, water, wood, paraffin, and the human body are good moderators. Note that moderation comes from collisions; therefore most moderators are also good reflectors.
- Enrichment: The probability of a neutron reacting with a fissile nucleus is influenced by the relative numbers of fissile and non-fissile nuclei in a system.
- Reflection: When neutrons collide with other atomic particles (primarily nuclei) and are not absorbed, they are scattered (i.e. they change direction). If the change in direction is large enough, neutrons that have just escaped from a fissile body may be deflected back into it, increasing the likelihood of fission.
- Volume: Increasing the size the body of fissile material increases the average distance that neutrons must travel before they can reach the surface and escape.
- Temperature is another parameter that affects the criticality of the system. It is important for DOE to understand where this parameter would apply in a landfill condition.

Mercury contaminants should also have restrictions imposed with respect to disposal in the EMDF. DOE should be required to remediate Mercury contaminants in compliance with applicable state and Federal agreements and regulations. In the 2017 DOE Strategic Plan for Mercury Remediation at the Y-12 National Security Complex (Y-12 DOE/OR/01-2605&D2/R1), DOE indicates that it intends to secure

regulatory approval for land disposal of treated mercury contamination in the proposed EMDF (Site 7e) pursuant to Resource Conservation and Recovery Act (RCRA) standards. DOE also indicates that it will either seek a waiver from regulatory standards for mercury cleanup, or pursue TDEC and EPA approval for interim cleanups. Further, DOE indicates that it might seek a reclassification of designated uses for surface water and groundwater and that land use designations will not be a determinant in assigning groundwater or surface water resource classifications.

DOE's intent to ignore land-use designations may be considered by some in the local community as a breach of faith with the citizens who devoted many hours of their time to working with DOE to hammer out a mutually acceptable (and technically practicable) set of end-use designations for DOE's Oak Ridge lands, with the expectation that DOE would achieve sufficient cleanup to support the designated uses. DOE along with TDEC and EPA Region IV should provide meaningful opportunities for public engagement on this issue and related issues on this Proposed Plan.

DOE notes in the Mercury Strategic Plan that its remediation efforts over the past 20 years at the ORR have not resulted in acceptable mercury concentrations in fish samples taken from the Upper East Fork Poplar Creek (UEFPC). The regulatory limit for methyl mercury is .3 mg/kg (ppm - parts per million) in fish tissue. Mercury contamination is present in the soil, sediment, water, biota and building structures. Potentially compounding the mercury contamination concern is DOE's plan to demolish several process facilities totaling 1.8 million square feet at the Y-12 complex that contain both radioisotopes and mercury contaminants.

DOE estimates that total loss of mercury to the environment since operations commenced at the ORR to be in excess of 2 million pounds. DOE asserts that it will seek to construct a water treatment facility in the near proximity to Outfall 200 in the Y-12 Complex for mercury removal. DOE believes that a significant portion of Mercury contamination is located at the Y-12 complex, although the treatment facility will also serve to remediate Mercury contamination from other locations on the ORR.

DOE considers the remediation of Mercury to be a high priority. TFG agrees that Mercury contamination is a significant issue at the ORR and one that needs further assessment relative to a decision to dispose of Mercury wastes in the EMDF. Specifically, DOE should undertake further investigations to ascertain the type of Mercury forms present at ORR. Mercury exists in various forms at the ORR. The toxicity of mercury varies by forms. DOE asserts in the Mercury Strategy that most typically mercury exists due to its stability in a "mercury II valence state versus the mercury I valence state...", from the more soluble inorganic mercury (II) compounds (e.g., mercuric oxide, HgO) to the least soluble, mercuric sulfide (HgS, cinnabar), as well as (more sparingly) organic methylmercury compounds and, finally, a portion is present as elemental mercury. Depending on the location, any of these mercury compounds may be dominant in soils (with the exception of methylmercury, which is typically present in very low concentrations in soils, usually representing far less than 1 percent of total mercury)." The City of Oak Ridge will want to insure that treatment technologies proposed to remediate or stabilize mercury are effective for all forms and that these technologies are effective for stabilizing the physicochemical form(s) of mercury to which it is applied and will remain stable over the long term in the setting where it is placed.

DOE should be required to develop landfill waste attenuation modeling that is calibrated to the defined hydrogeological conditions at the EMDF location and which accounts for the construction of the landfill multi-layer protective design. The modeling would be used to predict the concentration of contaminants at Points of Compliance.

The TM and in turn this Proposed Plan did not include detailed information on how DOE will assess the adequacy of site 7c for construction of a low-level nuclear and hazardous waste landfill. The TM should have provided greater detail on the Conceptual Site Model (CSM). Development of a CSM is an element of

defining environmental problems. CSMs consist of understanding the nature and extent of contamination present, the fate of those contaminants in the environmental setting, and the potential location of receptors that use or may use the contaminated media. Development of a complete CSM and then defining the magnitude of the impact of the contaminants on receptors completes the problem definition. More specifically, a CSM that identifies the source(s) of the contaminants of potential concern (COPC), will also assess the likely migration pathways and potential exposure routes, and their ultimate fate in the environment. Finally, using the transport and fate information along with toxicity information, the COPCs are identified for applicable potential receptors.

A future condition CSM identifies the key elements of fate and transport, which include the media that contaminants may move through and the receptor that could become exposed to contaminants. The locations of these receptors are termed point of assessment (POA) or point of compliance (POC) and are used to define the exposure assumptions that are in the modeled Waste Acceptance Criteria (WAC) development. A POA is a point at which it is assumed that a receptor may come in contact with media that may be contaminated by a potential site 7c EMDF based on fate and transport modeling and current and future site characteristics. POA locations are selected based on water flow directions beneath the site and likely future use scenarios in the vicinity of a potential 7c landfill, resulting in potential exposure to a receptor. Based on characteristics of the relevant exposure media and locations, specific exposure scenarios apply to the POAs, which are considered in the development of modeled WAC to ensure protection of human health and the environment. The POC is a regulatory-driven requirement and is the basis for future monitoring of groundwater in the regional aquifer.

The TM and the Proposed Plan do not provide information on either POAs or POCs. This information as well as a more robust description of the contemplated CSM should have been provided in the [sic] both of these documents.

Comment 2.13: Pages 23-24. NEPA. DOE has limited its assessment of National Environmental Policy (NEPA) impacts from the proposed site 7c EMDF to land use impacts. Congress, through the National Environmental Policy Act of 1969 (NEPA), established a framework for the review of remedial actions carried out by the federal government and has imposed on federal agencies the obligation to assure a “safe and healthful environment.” NEPA was enacted not only to force federal agencies to consider the environmental impacts associated with projects under federal jurisdiction, but, more importantly, to establish procedures by which members of the public would be afforded the opportunity for meaningful participation in the agency’s consideration of proposed actions.

While NEPA does not directly apply to the EMDF siting decision, in October 1989, the DOE called for integrating the requirements of NEPA with those of the CERCLA for DOE remedial actions conducted under CERCLA (DOE Order 5400.4, issued October 6, 1989). This resulted in the creation of the RI/FS process used by DOE to assess the proposed site 7c EMDF.

The Proposed Plan offers a minimal NEPA analysis. The City of Oak Ridge should request that DOE prepare a NEPA Report of Findings that fully complies with Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 CFR parts 1501). Specifically, the regulations require federal agencies to consider actions that impact environmental, social, cultural, economic resources, and natural resources. Specific NEPA analysis that DOE should undertake relative to the site 7c are as follows:

- Consideration of impacts to wetlands and associated habitats is noticeably absent from this discussion...

- Socioeconomic impact is not measured solely in numbers of jobs, as implied on page 21. DOE needs to acknowledge the potential for adverse effects on the host community of Oak Ridge, including the opportunity cost from businesses unwilling to locate near a radioactive/hazardous waste disposal site, resulting from negative publicity about the landfill.
- The discussion should include a full comparison of onsite and offsite disposal alternatives, to include (for example) distances to the nearest neighbors, potential exposure to visual and noise impacts, hydrologic and other pathways of potential exposure. Since the potential locations for offsite disposal are known to be specific facilities in Utah, Nevada, and Texas, their attributes can be used as a basis for this discussion.

TFG has previously documented the negative socioeconomic impact of ORR activities on the City of Oak Ridge. The DOE has failed to integrate any of these findings in their decision-making processes. The City of Oak Ridge should insist that DOE undertake these NEPA studies (i.e., either an Environmental Impact Statement or Environmental Assessment) and quantify the impact ORR operations have had on the City.

Comment 2.14: Page 25. Preferred Site Location. DOE indicates that site 7c is the preferred location for construction of the EMDF because it is protective of human health and the environment, cost-effective, appropriately compliant with all Federal and State requirements, and effectively balances the CERCLA remedy selection criteria. In addition, DOE asserts that the site minimizes short-term risks to humans through transportation or industrial accidents. The first statement is inaccurate, as DOE will need to seek regulatory waivers and, therefore, the preferred alternative is not “compliant with all Federal and State requirements.” The second DOE statement is not supported by any data to substantiate the claim. It is not apparent that onsite disposal would minimize industrial accidents, and traffic accidents are not normally the focus of a CERCLA evaluation of short-term effectiveness.

It is concerning that DOE has intentionally inserted qualifications in their advocacy for Site 7c in a manner that distorts the CERCLA evaluation criteria, presumably in order to cast the preferred alternative in an undeservedly favorable light. An action is supposed to comply with ARARs; the words “appropriately comply” appear to be a hedge related to DOE’s desire to comply only with those ARARs that the action can comply with. The words “use permanent solutions and resource recovery technologies to the extent practicable” are not in the CERCLA evaluation criteria. Treatment cannot be represented as “a principal element of the proposed remedy” when the proposed plan doesn’t describe the WAC nor explain how treatment of mercury would be accomplished, much less provide assurance that the treatment would be effective in reducing toxicity or mobility of this contaminant.

Comment 2.15: Page 26. Community Participation. The City of Oak Ridge does not support DOE limiting the public comment period to 30 days. A 30-day public comment period isn’t long enough for the sole predecisional opportunity for public input on a radioactive and hazardous waste landfill that might operate for 30 years. The statement that “The proposed plan provides stakeholders with the information necessary to determine if the action is warranted” is not true of the current draft.

Comment 2.16: Page 26. Long-Term Stewardship of the EMDF. DOE has indicated that they will assume long-term stewardship of the EMDF following landfill closure.

Comment 2.17: Contingency Planning. DOE should include the Proposed Plan [sic] a Contingency Plan in the event Site 7c is not determined to be an acceptable remedial option for disposal of ORR wastes. DOE has indicated in the Proposed Plan that the operating EMWMF is approximately 75% filled. DOE should update the community on the estimated date when EMWMF will be 100% filled and its contingent plan to dispose of wastes in the event of a non-decision in the site 7c EMDF.

Comment 2.18: It is apparent that the Proposed Plan released by DOE is incomplete as significant data is lacking and needed for the public to make an informed opinion or judgement on the viability of site 7c as the repository for low-level nuclear and hazardous substances and wastes. As a consequence, the City of Oak Ridge, TDEC, EPA Region IV and the general public have only been presented with DOE's preferred remedy for the disposal of low-level nuclear and hazardous substances and wastes from the operations at the ORR absent the requisite site data to support any site decision. The release of a pre-decisional document that will have an impact to the local community and the nation as a whole should not be taken lightly. DOE should be undertaking a more open, transparent, comprehensive and deliberative process that seeks to educate the public on the benefits and costs of proposed actions to determine the appropriate and safe location for the disposal of nuclear wastes with half-lives of millions of years. TFG encourages the City of Oak Ridge to make clear to DOE and the regulators of the ORR (i.e., TDEC and EPA Region IV) that the approach and process being employed by DOE is unacceptable and changes are required in how and when DOE presents its Proposed Plan to the public.

Comment 3: Comments from City of Oak Ridge, Environmental Quality Advisory Board (EQAB), July 9, 2018

Comment 3.1 (comment on draft Proposed Plan): Summary/Recommendation: EQAB recommends that City Council should withhold endorsing this Plan until the serious flaws which have been identified by us, by the city's consultant Ferguson Group, and by TDEC, are corrected **AND ALSO** until DOE has committed itself in writing to fully follow in good faith the NEPA process as provided by law, especially in regard to timely understandable communication with the host community (us), without reservations, holdbacks, artificial deadlines, or any *a priori* exception- or waiver-seeking.

Comment 3.2 (comment on draft Proposed Plan): Not Ready for Prime Time: In brief, it was EQAB's sense, many who work in the private sector, that if this Plan were a response to an RFP, the Proposer would not win the work. The Plan as presently written has dozens of serious flaws—numerical, logical, grammatical, programmatic—to be detailed in a forthcoming report this month.

Comment 3.3 (comment on draft Proposed Plan): No Need for Rush to Judgement: How the toxic waste and radwaste from the ORR is ultimately handled has ramifications for centuries into the future for the residents of Oak Ridge and all those who live downstream of here. In this context, a 30-day timeframe for a Record of Decision is unnecessary, unseemly, and unwise. There is no technical need for a legally binding decision now.

Comment 3.4 (comment on draft Proposed Plan): Past Performance and Beer: EQAB is unimpressed by DOE's past performance at the existing EMWMF, which has wasted much of its design capacity due to mismanagement. Hence EQAB is unhopeful that yet another waste dump (confusingly termed "EMDF" in the Plan) in the neighborhood would be run any better. It is always fair and prudent to evaluate past performance as a factor before making any decision, not only one as weighty as this. For example, a beer permit is only granted to an *individual* manager working at a *particular* venue. Change either, and a new license must be applied for. Past performance is a significant factor in that Board's decision—for example, a history of violations for serving alcohol to minors would be disqualifying. If past history is any guide, we'll be doing this again in 20 years, ruining yet another greenfield. Vetting a project of this magnitude (hundreds of millions of dollars) with such a long tail (centuries, even millennia) ought to be at least as rigorous as what we do when granting someone a beer license.

Comment 3.5 (comment on draft Proposed Plan): Bad Writing/No Plain English: All the Board members who reviewed the 07 Jun 18 draft of the Plan had trouble understanding the text, following the logic, or readily finding support for claims. In addition, there was no executive summary, laying out the most important considerations and recommendations.

Comment 3.6 (comment on draft Proposed Plan): Bad Faith: While claiming that they will follow CERCLA (which also means, bound by the NEPA process), DOE has also stated out the outset in the Plan and in other venues that they will seek waivers for *at least* three significant elements that EQAB is aware of as of today: reducing required height above water table, reducing maximum permissible uses of surface water and groundwater, and exception with respect to the handling mercury [sic]. If the site is “perfect”, why are *any* waivers needed? This is akin to saying, “we will sell bladeless knives without handles”. With such items waived, the process is not CERCLA. Under these conditions, RCRA is the more appropriate process. If a private-sector entity entered a deal with no intention of honoring the deal due to such reservations in mind, they would be rightfully accused of “negotiating in bad faith”.

Comment 3.7 (comment on draft Proposed Plan): Masonry and Mercury are Like a Sponge and Water: Some technical specialists such as toxicologists know that metallic mercury (liquid at room temperature) is so slick that it will penetrate and infiltrate, simply by the force of gravity, just about any material, even a seemingly solid one like concrete. A rare few understand that under the right circumstances the mercury can move right back out again—at the microscopic scale, stone is a sponge. It is certain that the vast majority of the public, who would have to live with the mercury if it is released again in that form, do not understand this essential fact. Nowhere is it made clear to the reader, or even hinted at. East Tennessee is a temperate rain forest, above miles of fractured bedrock full of holes. There is no safe way to store such a fugitive substance like mercury, except far away from people, and far away from water, i.e., at any of a number of existing, already-permitted, appropriate facilities out West.

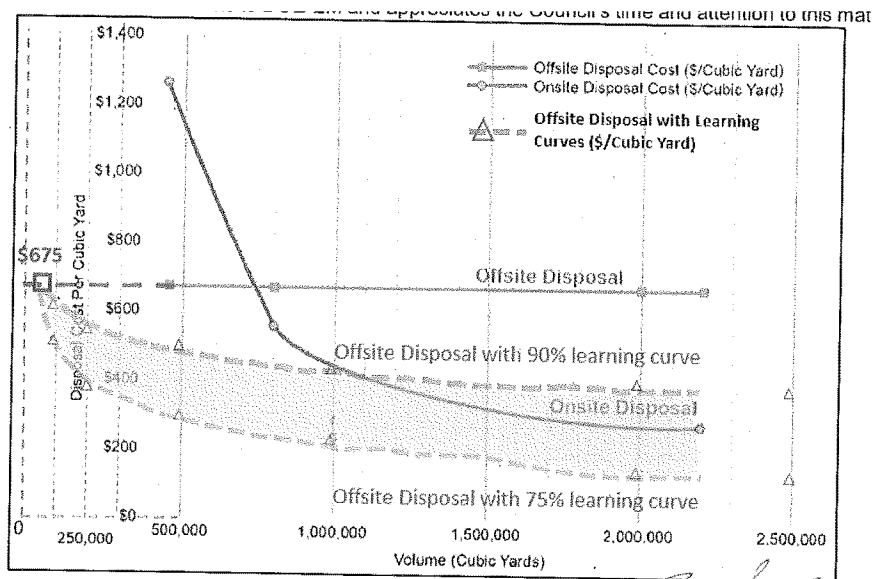
Comment 3.8: September 4, 2018. Summary/Recommendation: The EQAB resolves that its position of July 7, 2018, remains unchanged. While we thank DOE-EM for providing their Plan for review, it has serious flaws. The concerns we expressed then still apply (attached at bottom for your convenience); now we have identified more issues. We advise City Council that DOE-EM needs to complete its response to the City Manager’s July 12 submittal and answer the previous questions, as well as the new concerns we are bringing to light in this letter. EQAB strongly endorses the NEPA process and urges consideration of the City’s concerns by DOE-EM in this proposed landfill planning process.

- The Superfund law (CERCLA) is designed for cleaning up contaminated property, but DOE-EM’s Preferred Choice is to contaminate a clean site, Central Bear Creek Valley (CBCV). ***Forever sacrificing 70 green acres is not “remediation”; it is the exact opposite.*** It is unreasonable to put the entire ORR (most of which is clean) into one basket (1 monolithic site on the National Priorities List) just in order to shuffle hazardous waste around it. In this situation, RCRA is the correct process, not CERCLA.
- ***The more DOE-EM’s Preferred Choice is looked at, the worse it looks.*** Recent well sampling indicates the groundwater table does not meet TDEC and EPA requirements, as noted by EPA on August 16.
- DOE says onsite disposal “creates jobs”. (1) Those jobs would be created no matter where the waste ultimately ends up, and (2) ***trashing Tennessee’s future is not a viable worthy “jobs program” for us.***
- In other forums, DOE has stated that it will not publish its waste acceptance criteria (WAC) before the record of decision (RoD). This is unacceptable for a problem that our descendants must live with for centuries. **The WAC must be publicly disclosed before the RoD.**
- DOE-EM’s analysis neglects Central Bear Creek Valley’s substantial long-term future value to the City as greenspace, hence it is not a proper full cost:benefit analysis as defined by NEPA. It should also factor in that ecosystem services provided by the greenfield as-is (forested) to the community, which EQAB estimates are worth roughly \$0.5M/year, or ~\$30M present value. DOE grossly

undervalues this greenfield at less than 1/10th of that. (EQAB notes this problem of undervaluing ORR land applies to PILT, too.)

- **Onsite disposal is not safer.** DOE-EM's Preferred Choice is predicated on the idea onsite disposal is safer than offsite (but they didn't provide backup). EQAB disputes this proposition. Transportation of every kind has gotten much safer with time. In 1990-2009, overall US motor vehicle deaths dropped by *half* (corrected for population growth) from 2 fatalities per 100 million miles, to 1. At the same time, heavy truck fatalities dropped by a quarter, from 571 to 422, i.e., about 1.3 per year per million people. Source: *Statistical Abstract of the United States*, 2012 ed., p. 694. DOE has a good transportation record, e.g., reporting **zero** transit incidents (i.e., **accidents**) sending extremely hazardous waste 1300 miles away to the WIPP in Carlsbad, NM. Compared to the toxic hazards to residents from the ongoing leaching of mercury into our underground aquifers in rainy east Tennessee, offsite disposal at a dry unpopulated site is safer.
- **Onsite disposal is not cheaper.** DOE-EM's Preferred Choice is also predicated on the proposition that onsite disposal is cheaper than offsite. EQAB disputes this, and performed some independent research. There are three appropriate *landfills out West right now*, in Utah, Nevada, and Texas, *far away from water and people, ready, willing, and able to take the waste we can send*. EQAB does not agree with DOE-EM's conclusion (their cost analysis was not provided to us). We challenge them to justify their conclusion. DOE claims for itself a very generous aggressive cost reduction per unit as Onsite Disposal ramps up. The claimed reduction is especially steep in the early years. However, DOE states that the unit cost of the Alternative Offsite Disposal will remain flat for decades, no matter the volume. Not only is unwarranted/unproven, it goes against every principle of economics and industrial engineering. If the usually customary benefits of learning curve, economy of scale, and mechanization/automation (not to mention robotics in the future) are applied to Offsite Disposal, we should expect cost to decline in the long run:
 1. Learning Curve: Most any process gets significantly cheaper per unit as people get more productive and efficient. Just about every industry falls somewhere between the 75% (rapid process improvement) and the 90% (slower process improvement) experience curves (in blue) below.
 2. Economy of Scale: Every process gets cheaper per unit as the total enterprise gets larger.
 3. Bulk transportation tends to get more mechanized and automated over time.
 4. Therefore, bulk transportation tends to get cheaper in constant dollars over time. Look how containerized shipping has revolutionized the global economy. According to the *Economist*, during the container shipping price wars in 2015-2016, the price to send a Conex box across the Pacific Ocean (half the world) dropped from over \$1000 to only \$300, a 70% reduction.
 5. This phenomenon also occurs in construction, esp. bulk work like earthmoving. Simple cut and fill operations can be less than \$1 per cubic yard, according to *R.S. Means Construction Cost Data* handbook, which is orders of magnitude less than the \$675 per cubic yard cited in the Plan.
 6. It costs the same money to package waste, load, and unload it, regardless how far it goes. Variable costs like mileage and fuel are only a minor component of the total, amounting to pennies per cubic yard per mile, according to *R.S. Means Construction Cost Data* handbook.
 7. Therefore, **EQAB's assessment is that it is reasonable to expect continuing volume discounts from the 3 offsite western facilities** in exchange for the steady predictable work.

EQAB examined Figure 10 on page 15 of DOE's Plan. DOE had omitted the origin of their original figure, so we adapted the figure for EQAB's use by extending the chart all the way to the left (dotted gray lines) and overlaying experience curves (blue). Using DOE's own data and applying the learning curves, you can see that **offsite disposal would likely be cheaper, immediately and in the future, than onsite disposal**. This is without factoring in the future value of an unspoiled CBCV to the City. EQAB encourages City Council to submit our concerns to DOE-EM and appreciates the Council's time and attention to this matter.



Comment 4: Comment from Kelley Smith:

I agree with DOE's assessment that more landfill space is urgently needed, but am concerned with the higher risk of highly water mobile contaminants like mercury getting out of the landfill and into populated areas at the preferred location. Also, it isn't clear what the landfill accept [sic] exactly since DOE won't be finalizing the waste acceptance criteria till after a landfill location is selected-does not seem like a good idea to approve a landfill until we know what waste it will accept. Last, the document notes that waivers would be required because the preferred location does not meet a number federal laws and/or EPA and TDEC rules/regs. How is a site that needs extensive waivers better than sites out west that are already approved, operating, and have enough space for all of the waste; are more public health and environmentally protective; and are more likely to be less expensive over the long-term?

Off-site disposal seems like the most public health protective and cost-effective way to proceed, especially for the radioactive waste and the waste full of hazardous compounds that have a high chance of being mobilized when exposed to water.

Detailed Comments:

- Why is CERCLA being used for a new landfill site when the site is an uncontaminated "greenfield" and when EPA's website states that all new landfills are regulated by RCRA: <https://www.epa.gov/landfills/basic-information-about-landfills>?
- DOE has not included a contingency plan in the event that the preferred site is not accepted by TDEC and EPA as a landfill site. What is the contingency plan if the site doesn't get the numerous waivers from TDEC and EPA to proceed?

- What will the waste acceptance criteria for this site be? It doesn't seem appropriate to decide on a landfill site before it is known what waste will be accepted at the location.
- Why would the plan state that it is "compliant with all federal and state requirements" when it also states that the preferred site would require waivers from those same laws and regs? Also, why hasn't DOE gotten waivers in advance of making a final decision or even submitting this proposed location?
- The Land is currently designated for unrestricted use in the future. Will DOE be requesting a change of the future land use designation at the preferred site?
- The DOE reservation currently comprises a large amount of Oak Ridge's territory and current projections suggest that the population of the East TN region (which includes Anderson County and Oak Ridge) is expected to grow by as much as 34% <http://www.etindex.org/demographics/population/population-projections>. Have the costs of permanently removing an undisturbed area that is slated for unrestricted use in the future been taken into account (like lost tax revenue, other associated economic gains, or just the value of keeping untouched clean land- ecosystem services)?
- UCOR staff have verbally told community members (including me) that the preferred site would need to be remediated sometime in the future and that those future costs alone would make the on-site disposal plan more expensive over the long term than off-site disposal out west. Why are those likely expected long-term costs not accounted for in the plan?
- What are DOE's plans to ensure that the underdrains won't clog? If they do clog, are there plans in place that would allow easy access to repair them?
- The building materials are likely laden with mercury and other highly mobile hazardous materials, the proposed landfill is not more than 50 feet above the high water mark for the water table as EPA/TDEC laws/regs require, and research suggests that landfill covers similar to what is proposed are likely to fail in the long term. How does this provide the lowest environmental and public health risk to exposure to hazardous and radioactive waste?
- The plan seems to suggest that the landfill might accept new waste in addition to legacy waste and it should be made clear. Also, would any waste from outside of the DOE reservation be deposited in the landfill?
- DOE applies cost savings tied to expected processing efficiency gains because of the volume of waste that will be processed and stored at the preferred site. Why are similar savings not applied to off-site disposal since the waste will still need to be loaded on a truck and driven to a landfill? Seems fair to apply similar cost savings to the off-site disposal options. Also, why are volume guarantee cost-savings estimates for the off-site options not provided?
- I am pretty sure that DOE has a very good transportation record for safely moving hazardous waste. I am not aware of any lives lost related to the transportation dangerous waste for DOE. Why was that data not used for the transportation risk assessment section of the document?

Comment 5: Comment from Nanette King:

I was born, raised, and now reside in Oak Ridge, Tennessee. We are proud of becoming a national park. National parks are to be kept clean for public enjoyment. Waste was naively dumped at the Y12 site during the Manhattan Project. As teenagers, my friends and I discovered soiled jumpsuits from Y12 in dumpsters on Warehouse Road. I remember when our creeks were dredged for mercury.

We have suffered enough. As Oak Ridge continues to grow in population, it is imperative that we leave pristine forests and land unsoiled. Our children, adults, and fauna require it. In the past radioactive waste has been transported to areas of low or zero population. I implore you to continue this trend.

Comment 6: Comment from Mike Guth:

I strongly oppose having yet another waste site in Oak Ridge. Learn from the hurricane in North Carolina dredging up fly ash waste.

Comment 7: Comment from Marilyn Burgess:

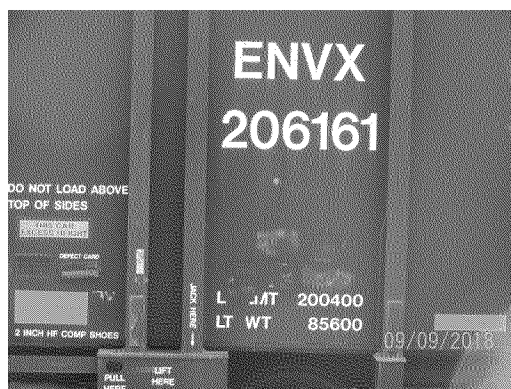
It is the height of stupidity to build a hazardous waste landfill near the city where our geography is not conducive to containment. Porous limestone and the amount of rainfall and flooding means our city will be dealing with more contamination. Having analyzed groundwater with a pH < 2 out of the ground, with oil layer on top, and heavy metals is bad and not something we need more of.

Comment 8: Comment from Rebecca Halperin:

I'm in opposition of new landfill at Y-12. I'm very concerned about the watershed and high potential for downstream contamination.

Comment 9: Comments from Doug Colclasure

Part 1: There are a dozen or so bulk high-volume rail box cars with removable tops parked on the rail spur in the old "S-50 - Power House" area of East Tennessee Technology Park. See attached pictures [below]. The ENVX acronym-number on the side of the car is a railroad car numbering standard. Looking at the national RR data base, this number/ownership is EnergySolutions LLC.



EnergySolutions also owns the short line railroad at ETTP and also manages the hazardous materials disposal facility at Clive Utah <http://www.energysolutions.com/clive-disposal-facility/>.

There are a projections [sic] that off site disposal of Y-12 & ORNL hazardous demolition debris will be more expensive than a new on site facility such as the proposed EMDF.

As a way to more accurately assess the off site disposal costs it might be possible to work with EnergySolutions to design and conduct a one time experimental off site (Clive, Utah) disposal. Consider filling 10 of these rail cars with ETTP demolition debris for example, debris otherwise headed to EMWMF. And do documentation requirements, followed by shipping and disposing at the licensed disposal site in Utah. This would provide a cost per ton figure based on actual parameters.

It might also be possible to reduce shipping (rail road) costs by working with TVA to hitch a ride on one of the empty TVA coal trains going west from Kingston Fossil plant. See below.

Hello Scott:

A couple of questions:

** As I understand it some of the coal fueling the Kingston Fossil Plant is mined in and shipped by rail from Colorado and Wyoming, perhaps even Utah, is that correct ?

** If so do the trains return empty to the mines, I would presume that is the case ?

---Thanks, Doug Colclasure, Oak Ridge TN

Part 2: I appreciate the hard work of The DOE, the Tennessee Department of Environment and Conservation (TDEC), and U.S. Environmental Protection Agency on planning for cleanup and disposition of the ORR hazardous waste. And by extension appreciation of the commitment of Congress and our legislative representatives on supporting the federal budget funding priorities for this cleanup. The Manhattan Project and subsequent Cold War era programs were a national priority and dealing with the legacy is as well, a national responsibility.

I have attended 6 public information reviews of the proposed EMDF and Bear Creek siting options over the past three months and the number of unaddressed concerns and unknowns expressed, creates considerable uncertainty for the projected cost, the environmental safety and public safety of the "on site" option.

The option for a new landfill on the ORR should be kept to an absolute minimum due in part to all the challenges and unknowns this region's rainfall can and will have on the ultimate goal of safe disposal of the hazardous waste. See following:

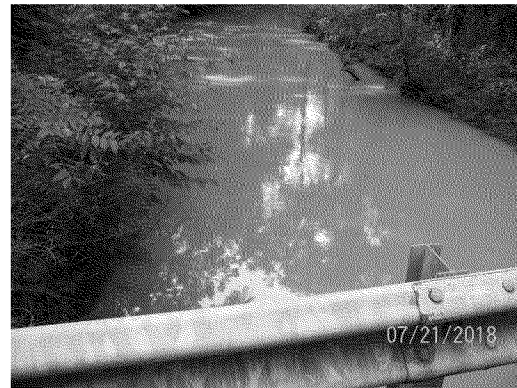
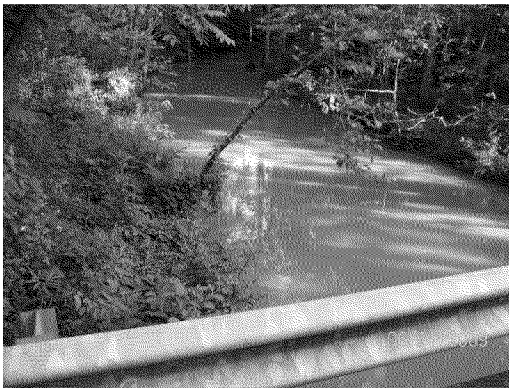
* The Central Bear Creek Valley Site should not be an option; [sic] The objective is to clean the ORR landscapes of legacy waste, not the opposite of creating another hazardous materials landfill. Especially one that will require stewardship (largely due to the wet environment) and maintenance for decades into the future. This proposed site is a hardwood forest, largely undisturbed for the past 75 years. Old forests have great value.

* Current annual rainfall of five to six feet and a changing climate with a warming atmosphere is forecast to result in more frequent and heavier rainfall events.

* The porous and complicated geology and hydrology of this unique Ridge & Valley province creates uncertainty and unknowns in the adequacy of a design for this proposed option.

* Damaging impacts to Bear Creek water quality related to EMWMF and supporting operations, have occurred and continue. And another similar landfill will likely cause more. Attached are pictures of the

sedimentation loading of Bear Creek following heavy rainfall runoff events -- July 2009 & July 2018. Numerous pictures in the intervening nine years reveal much the same. Another disposal facility will only add to the impairment of Bear Creek and down stream water quality.



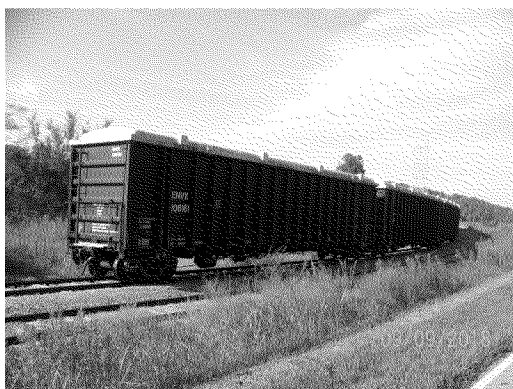
* Bear Creek sedimentation also comes from the Haul Road. About six miles of the road is within the Bear Creek watershed and at 35' wide it represents 26 acres with no silt controls. Add to that, constant loosening of the surface from motor grader maintenance and the result is a ready surface of loose and finely pulverized material subject to erosion. See attached picture.



* Contact water (rainfall -- 5' to 6' per year) removed from the landfill cells is also a potential impact to the Bear Creek water quality. This may also explain why the "fish warning" sign was placed at two locations along Bear Creek in late 2016. See attached picture.

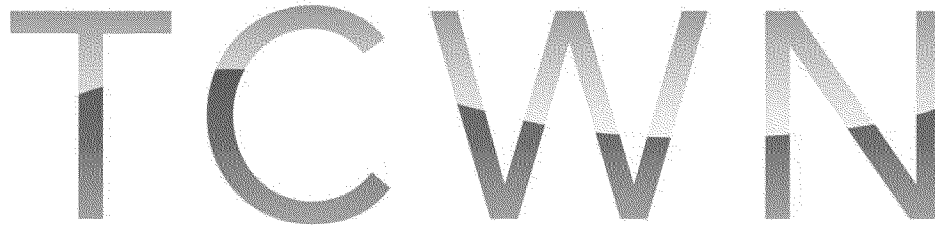


* The off site option may not be overly costly factoring in the considerable experience already gained as is evident from the shipping rail cars staged at Heritage Center- ETTP- see attached pictures.



* Redirecting the efforts & work force away from a proposed new landfill to more focused demolition materials screening, characterization, and volume reduction could significantly reduce the off site shipment volume and more efficiently utilize the remaining capacity of EMWMF.

I appreciate the opportunity to provide input regarding the proposed siting of a Hazardous Waste Landfill (EMDF_Environmental Management Disposal Facility) along upper Bear Creek valley on the Oak Ridge Reservation. Hopefully this input will be helpful in reaching a determination.



TENNESSEE CLEAN WATER NETWORK

P. O. Box 1521 Knoxville, Tennessee 37901
office: 865.522.7007 fax: 865.525.4988 website: www.tcwn.org

Contact: Renée Victoria Hoyos – 865.522.7007 x100 or 865.607.6618 (cell)

Op-Ed column

Renee Victoria Hoyos

Tennessee Clean Water Network – Executive Director

April 30, 2014

You now have a great opportunity to stand up for clean water in Tennessee. Until Monday, July 21, 2014, the Environmental Protection Agency is taking public comment on a new rule that will clarify what are the waters of the United States under the Clean Water Act. I urge you to voice your support for this new rule that will protect clean water in the Volunteer state.

It is a story most everyone learned in elementary school science classes. The rain that falls on the slopes of the Smoky Mountains flows into larger and larger streams until it empties out in the Tennessee River. The Tennessee River flows into the Mississippi River which empties into the Gulf. The interconnectivity of our water resources makes it essential to protect each leg of clean water's movement...from the smallest creek and wetland to the largest rivers and lakes in the state.

Recent U.S. Supreme Court decisions that interpreted the Clean Water Act questioned whether the health of upstream tributaries and wetlands impacted downstream water quality. The important physical, chemical and biological connections between upstream and downstream waterways were called into question by the Justices.

This proposed EPA rule draws on a large body of scientific evidence demonstrating a significant connection between the health of upstream waters and wetlands and larger navigable or interstate waters. This rule will provide protection to about two million miles of streams and rivers and about 20 million acres of wetlands in the United States. As these rivers and streams are the source of drinking water for millions of Americans and provide protection to the multi-billion dollar water recreational industry dependent on clean water, it is important to get this EPA rule finalized to get the needed protection in place.

It is important to note that the proposed rule preserves the existing Clean Water Act exemptions for farming, forestry, mining and certain other land use activities. When finalized, this water of the United State rule will bolster the Clean Water Act's legal and scientific

TCWN empowers Tennesseans to exercise their right to clean water and healthy communities by fostering civic engagement, building partnerships and advancing and when necessary, enforcing water policy for a sustainable future.

foundation, provide greater long-term certainty for landowners and protect the streams, wetlands, and other waters that feed our nation's rivers, lakes and bays.

The Tennessee Clean Water Network strongly supports this proposed EPA rule. TCWN's work to help citizens in Knox, Hamilton, Shelby and many other counties force improvements to water quality in their neighborhoods has resulted in healthier and stronger communities. The Clean Water Act is an important tool used by TCWN to protect water quality across the Tennessee and the proposed EPA will be a great benefit to many Tennesseans.

According to the EPA, the proposed rule would provide an estimated \$388 million to \$514 million annually of benefits to the public, including reducing flooding, filtering pollution, providing wildlife habitat, supporting hunting and fishing and recharging groundwater. EPA's cost/benefit analysis shows the public benefits significantly outweigh the costs of about \$162 million to \$279 million per year for mitigating impacts to streams and wetlands and taking steps to reduce pollution to waterways.

To make sure that farmers, ranchers and foresters do not suffer under this new rule, the EPA and the Army Corps worked with the United States Department of Agriculture to improve the opportunities to participate in USDA's voluntary conservation programs that help to protect water quality and improve the environment. By working together, the three federal agencies ensured that 56 specific agricultural conservation practices are not subject to the Clean Water Act.

There are several ways to send in your comment in support of this rule. First, you can visit the EPA website at www2.epa.gov/uswaters and click on the "submit your comment" link. Another way to comment is to send an email to ow-docket@epa.gov and include the rule number, EPA-HQ-OW-2011-0880, in the subject line of the email. The Federal eRulemaking Portal is also taking comments on the proposed rule at www.regulations.gov and type EPA-HQ-OW-2011-0880-0001 in the search field. And if the US Post Office is still the best option for you, here is the address:

Water Docket
EPA
Mail Code 2822T
1200 Pennsylvania Ave. NW
Washington, DC 20460
Attention: Docket ID No. EPA-HQ-OW-2011-0880

Please take just a few minutes to send in your comments in support of this important rule. It is important that we protect our valuable water resources for many generations to come.

About TCWN:

Tennessee Clean Water Network is a nonprofit organization created to advocate for strong policies and programs that result in more effective protection and restoration of Tennessee's waters and to educate organizations, decision-makers and the public about important water resource issues.

###

TCWN empowers Tennesseans to exercise their right to clean water and healthy communities by fostering civic engagement, building partnerships and advancing and when necessary, enforcing water policy for a sustainable future.

Observed Weather	Climate Locations	Climate Prediction	Climate Resources	Local Data/Records	Astronomical	NOWData
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NOWData - NOAA Online Weather Data													Enlarge results	Print	X
Monthly Total Precipitation for Oak Ridge Area, TN (ThreadEx)															
Click column heading to sort ascending; click again to sort descending															
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual		
1973	4.21	3.42	11.43	5.66	10.43	6.94	5.54	2.25	3.41	3.36	10.78	8.90	76.33		
2011	3.99	5.70	6.65	9.13	2.14	7.30	4.80	0.91	10.14	4.59	10.89	5.02	71.26		
1967	3.78	3.77	6.11	2.62	4.77	6.40	19.27	2.22	3.27	3.61	5.01	7.94	68.77		
1957	10.08	8.60	2.13	4.55	2.45	4.80	2.72	1.82	9.10	4.16	10.07	7.40	67.88		
2004	3.18	5.71	6.19	3.33	3.90	7.75	4.94	2.91	7.61	5.51	11.15	5.36	67.54		
2013	10.51	2.32	5.72	6.37	5.33	7.92	8.04	4.61	3.38	0.72	4.43	8.04	67.39		
1979	7.60	4.30	5.01	5.25	9.32	3.73	12.92	5.49	3.74	1.93	5.77	2.24	67.30		
1956	4.57	10.47	6.44	9.71	4.44	2.28	7.90	2.08	2.91	3.80	2.23	10.31	67.14		
2003	2.17	12.78	2.85	8.03	10.01	6.05	5.29	3.86	4.68	1.58	5.89	3.72	66.91		
1996	7.67	3.60	5.53	3.95	5.08	6.35	12.29	3.35	3.70	1.55	8.18	5.32	66.57		

This data is on our website and can be accessed here.

Column 1. Select "**Oak Ridge Area**"

Column 2. Select "**Monthly Summarized data**"

Column 3. Year range **POR - 2018** (POR) stands for Period of Record. Variable will be **Precipitation**, and Summary will be **Sum**

Column 4. Select "**Go**"

Once you get your results you can sort the columns of data. I clicked on the **Annual** column to sort the amounts from high to low.

Part 3: The objective of the Y-12 & ORNL cleanup of the Manhattan Project and Cold War era legacy hazardous waste is at a minimum, to leave the environment cleaner and safer than it is now at an affordable cost. This legacy waste is not a [sic] isolated Oak Ridge or Anderson County or Roane County problem but rather a national problem and a national challenge and solution. The facilities and their operations over the decades were a national mission and addressing the legacy waste is likewise a national priority. Please do not be constrained by the point some (locally or nationally) make that the waste was created in Oak Ridge and must remain in Oak Ridge.

The last thing anyone wants is to find out in decades to come or even 10 years out, that the waste destined for EMDF has more residual contaminants- mercury than anticipated and the monitoring reveals that mercury is escaping into Bear Creek. Rainfall on Mt Mitchell, barely 100 miles east of Oak Ridge in 2018 totaled 118", almost 10 feet. In fact in the past 6 weeks Oak Ridge has received 10" of rain. Managing ground water for decades to come and especially contact water during the burial process, etc. is a big deal and by some assessments leaves a big unknown.

Since plans are for the most hazardous waste to be transferred to licensed more arid disposal locations, perhaps the threshold for "most hazardous" should be further lowered, thus further lowering the volume now destined for EMDF. And avoid EMDF entirely by placing the even lesser amount of remaining lower level hazardous material/debris, in small engineered cells within the Y-12 fence upstream of the Out Fall 200/the planned mercury treatment facility, and thus within a brownfield and in the existing EFPC watershed not another watershed. Much the same for ORNL. As it was with ETTP cleanup, to leave a reindustrialization site, not so with Y-12 and ORNL [sic]. DOE operations at these sites is to continue for the foreseeable future, where infrastructure is in place for monitoring and stewardship.

Comment 10: Comment from John Shaw, Chair, Roane County Environmental Review Board

The Roane County Environmental Review Board (RCERB) would like to thank you for the opportunity to review the DOE document titled *Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Waste, September 2018*. The RCERB is very interested in the establishment of the proposed Central Bear Creek Valley (CBCV) storage site since it is located within the boundaries of Roane County.

The RCERB found that the identified document provided sufficient detail to fully understand the planned actions, construction details, monitoring, and long-term responsibilities for the proposed waste storage site. However, we did find some areas of the document that need additional review and/or clarification. These areas are:

1. The discussion on Page 9 of the *Waste Acceptance Criteria* (WAC) identifies where an example of a WAC (i.e., EMWMF) can be found but does not directly reference what is anticipated to be included in the CBCV waste site WAC. Has a preliminary/draft WAC been defined for the CBCV waste site yet? Will it be made available for public review and comment prior to final approval?
2. On Page 13 also in the WAC section, it is noted that “A process – to be reviewed and approved by DOE, EPA, and TDEC that ensures the wastes generated by CERCLA response action projects meets the EMDF WAC – will be developed before operation of the facility begins.” Will this process be made available for public review and comment prior to enactment?
3. On Page 13 under the *Wastewater Management* section, the Administrative Record is noted as not yet complete. Will the Administrative Record for the management and discharge of this wastewater be open to public review and comment prior to final approval?
4. On Page 14 under *Key ARARs* section, a TSCA waiver and a TDEC rule exemption (radioactive waste disposal) are indicated as required. These are mentioned again in the *Compliance With ARARS* section. Will the public have a chance to review what is being requested in these variances and provide a chance for comment prior to final approval?
5. Under the *Volume Reduction* section (Page 16), “mechanical size reduction of waste” is identified as method considered for any planned volume reduction. What “mechanical” methods are being considered?
6. On Page 18 under the *Long-term Effectiveness and Permanence* section, a cover is identified for installation over the waste site that will “reduce the likelihood of inadvertent intrusion by humans by increasing the difficulty of digging or drilling into the landfill”. No indication of signage or perimeter barrier was mentioned in the write-up. Are these planned for use as well?
7. The concerns resulting from hydrologic conditions and proximity to groundwater require further data collection efforts to determine the suitability of the landfill design and placement. On Page 6 under Site Characteristics (and discussed on Page 8), it states that “Pre-published Technical Memorandum #1 has been submitted based on hydrologic data collection from March and April. [sic] It is unknown what this Technical Memorandum #1 concludes or includes other than the assumption that further data collection efforts are to be taken to further characterize Site 7c during both “wet” and “dry” seasons. More information should be included in this Proposed Plan as to the findings and results contained in this Technical Memorandum, particularly in relation to the location of groundwater (e.g., water table) under (depth from proposed bottom of the landfill and current surface) and near the proposed landfill. The Tennessee Department of Environment and Conservation (TDEC) has voiced these same concerns. TSCA requires the liner system or in-place soil barrier be at least 50 ft above the historically high water table. It appears only about 13 ft of buffer/liner is proposed to separate waste from groundwater

(Figures 8 and 9). Page 14 discusses the need for a waiver since no facility in Bear Creek Valley would meet this requirement. What evidence is being provided to EPA that the landfill will not present “unreasonable risk of injury to health or the environment” from PCBs, mercury, etc.?

8. The plan states all onsite remediation activities implement recycling and segregation of waste at the generator site to identify non-hazardous/non-radioactive waste that may be disposed of in DOE industrial landfills. It also states projected volumes of industrial waste are not contained in this analysis. Reports have been made that much non-hazardous/non-radioactive waste has been disposed of in the EMWMF (i.e., waste that could have been disposed of in DOE industrial landfills), partially contributing to the EMWMF reaching capacity sooner than expected. More explanation is needed how segregation will be performed to prevent “clean” waste from being disposed of at the EMDF and using up available space.

In addition, we identified an editorial correction. In the Wastewater Management section, the first sentence needs to have a “to” included so that it reads “treatment prior to discharge”.

The RCERB would also like to be added to the Environmental Management Program mailing list in order to receive progress update information for the Oak Ridge Reservation. Please send these updates to John Shaw, 174 Country Club Road, Rockwood, TN 37854.

Again, we thank you for the opportunity to provide comments on this document. If you have any questions about the comments provided, please feel free to contact us for further clarification.

Comment 11: Comments from Dale Rector

Part 1: Post Link to RI/FS in Public Outreach materials. Post Performance Assessment and WAC with Public Outreach Materials.

Part 2 (from November 7, 2018 public meeting): Yeah. My name is Dale Rector, and these guys probably dread me standing up, but here I am. I worked with the State of Tennessee for 30 years, and most of it trying to oversight the Oak Ridge Reservation cleanup. And before that, as a biologist, seems like forever. But anyways, one of the thing that they presented was a regulatory process that seemed to just have a proposed plan on it. Some of you have already noted that it seems to be an awkward way to build a landfill under CERCLA, which is ordinarily a way to basically clean up discrete areas that are contaminated without the red tape of having to go through permitting.

And so – but what the typical CERCLA process has, leading up to a proposed plan, is remedial investigation, and a feasibility study, which there are five drafts of that have not been, as far as I know, resolved. The DOE is supposed to do a composite analysis that not only considers the performance of this particular facility, but in combination with other waste areas around it. We should have had access to all this information here at least for the first time, but probably before the meeting. And a performance assessment, which evaluates how well the engineering design and the intrinsic safety of the site, which there’s very little here to give you the hydrogeology conditions, in combination perform under a waste acceptance criteria, which we also don’t have. Okay. We don’t have that to discuss.

EPA, by this time, should have a risk assessment for us to look at, which we don’t have that. And under NEPA there should be some equivalency that considers all the things that people have talked about the community concerns. And so that’s some things that we should have had in hand before we came here tonight. The proposed plan is something that you have to discuss and evaluate and consider after you’ve had a look at all these other things. So that’s all I’ve – that’s all I’ve got to say. Thanks.

Part 3: Environmental Management Disposal Facility (EMDF) water resource protection requirements should not be waived.

DOE has not provided EMDF Waste Acceptance Criteria (WAC). This is the equivalent of not providing sampling data to generate a risk assessment for an area of contamination that is a typical superfund site. These data make up the Remedial Investigation Feasibility Study (RI/FS) that is the basis for the Proposed Plan. In our case we have no WAC, no data, so no Risk Assessment, and so no RI, so on. This more than any other one thing is the problem. The RI/FS was first drafted and reviewed in 2012. There are five drafts, inferring that DOE is not seriously concerned with compliance. These ignored technical and regulatory details may ultimately cause the disposal facility to fail.

Furthermore, I understand from State remarks at the Anderson County Commissioners meeting (1/7/2019) that DOE is not using an EPA type Risk Assessment for radionuclides but instead using [sic] the internal DOE Orders to complete evaluation for waste acceptance. Doing that isolates information from public review. The public is being asked to comment on the project without the most important information. This approach cannot meet the community acceptance criteria under CERCLA. Indeed the equivalency is to do a NEPA Environmental Impact Statement. That is the detail that should be completed under CERCLA for a project this size anyway. The community, from what I can tell, is upset about this disposal proposition. The community is reasonably informed enough to see omission of critical detail.

Even the best available sites on the Oak Ridge Reservation cannot be easily modeled to estimate groundwater elevations let alone contaminant fate and transport. The problem is abundant rain and complex geology. Furthermore DOE waste has additional uranium and heavier radioactive elements, (transuranics) that emit more radioactivities [sic] over time while the disposal facility becomes degraded. NRC and agreement state regulations require that wastes be short lived enough so that when engineered components fail wastes are not harmful anymore. The DOE orders recognize this too and that is the reason that ORNL no longer shallow land disposes its operational low level rad waste in Oak Ridge. This place is not intrinsically safe enough to meet disposal requirements for any but innocuous wastes. Unfortunately, the inclusion of this disposal in CERCLA provides DOE an opportunity to waive regulations. Ones that were written to protect people for millennia, not just for a time of immediate economic convenience.

What about the EMWMF, the facility already in use? The WAC for it was biased to begin with. It did not even include details enough to protect DOE workers let alone the environment (EPA-350-R-07-002, p26). Furthermore it was not corrected for a drain that was installed to reduce groundwater elevations directly under waste. This drain exits the disposal facility like a spring directly to the headwaters of Bear Creek. Water, regional geologic processes, and component degradation will probably spread contamination from this buried waste within a 1,000 years period [sic] of evaluation. Sadly, without remediation, the only real attenuation of the releases will be from waste dispersion. In the meantime, over such a long period of time inadvertent exposure to intruders is likely. Because DOE disposed uranium and transuranic wastes, a typical time progression to evaluate it is a geometric series such as three years, 10 years, 30 years, 100 years, 300 years, 1,000 years, 3,000 years, 10,000 years. This proposal should really be about the design of geologic markers for EMWMF wastes. These are the types of things the public should know about.

There is not an environmental reason to move mercury waste in with rad waste creating mixed waste to impact another watershed. It does not degrade with time and will eventually further pollute fish and wildlife. Aggressive thermal desorption with subsequent treatment of residuals in waste to sulfide might produce a stable residual material for storage. The elemental mercury from desorption should be put in DOT compliant containers for storage. The mercury waste could be shipped off site to mercury waste processors for compliant treatment, disposal, or storage under regulatory permits.

Please realize that the Clean Water Act drove the enactment of CERCLA in the first place. Since water driven fate and transport is the overwhelming factor here, just about all variables are related to the Clean Water Act. The most important of these is the concentration of waste to be disposed. Withholding those concentrations from review eliminates public evaluation of compliance with the Clean Water Act. Water resource protection requirements should not be waived.

Finally, if DOE ever does provide enough risk related data to support EMDF, the approval should include remediation of the pollution source areas that already exist in Bear Creek Valley. That way the overall environmental degradation of the watershed could be reduced. Water resource protection requirements should not be waived.

Comment 12: Comment from Kathleen Vinson

Part 1: I've heard nothing but objections to this "plan" and I wonder (1) why is there such resistance to including the community and getting their agreement? (2) why is it seeming to be this difficult to draft a plan that would adequately solve this disposal problem? (3) why does it seem to be the conclusion that this direction will only serve to make the problem of toxic waste disposal in OR even worse?

Part 2: I am a native daughter of Oak Ridge, TN and I have returned after a few decades away to live here in my childhood home full time. Since returning, I have noticed some things have changed and others have not.

One of the biggest things I observe that has NOT changed is the lack of inclusion shown by the DOE (formerly AEC) for the citizens, economy, government and quality of life of the town of their creation, Oak Ridge, TN.

When I heard City Manager, Mark Watson say at a public meeting that, "Oak Ridge is not at the table to shape the destiny of our city.", I know that this has been a persistent problem for this town and the people who attempt to elevate this town to be a place where people want to live and prosper.

The proposed Environmental Management Disposal Facility (EMDF) is such an example of the manner with which the Federal Government Agency that really owns Oak Ridge goes about their business. They do what they want and, may or may not, inform the City of their actions. There is certainly no opportunity for the City to participate with this Agency.

There never has been and from the looks of it, never will be.

I am encouraged that the citizens of Oak Ridge and surrounding counties, Anderson and Roane, are insisting that this Agency listen to their concerns and give a real and relative response.

To that end, my comment is this -

This proposed landfill is another example of management decisions that are made to shortcut and shortchange the necessary operations required to adequately operate an international level nuclear facility. If the parties concerned want to have and continue to have said nuclear facility in the legacy system of Oak Ridge, there is a minimum standard of compliance with the handling and disposal of all levels of nuclear material that must be met to maintain a standard of habitability here.

To build this landfill, these minimum standards are not being met. It has been stated the reason for building this landfill is to save money on the disposal of the building materials that are demolished at Y-12.

It has been shown in numerous ways that cutting these kinds of corners does not ever result in the overall cost savings that are anticipated.

In other words, you get what you pay for. If you go on the cheap, you will get an inferior result.

This has been one of the biggest mistakes made in the years following the end of the Project. Oak Ridge has always been on the cheap end of the equation. No one ever thinks the City of Oak Ridge is worth the time, care and expense to do something right.

Therefore, my comment is against this landfill. Oak Ridge deserves better. It's about time the citizens of Oak Ridge demand their owners, The Magicians of Atomic Science, give them what they deserve, which is a decent, clean, non-contaminated, well-run city for us all to live in.

Comment 13: Comment from Larry Gustafson

Part 1: The current site system has been in operation for 15 years with a few problems. The new site system has been modified from the first system, so, the new system has not been proved [sic] to be what is needed for the new site and cannot be proved so. One mistake in design, and there will be mistakes & failures over time, not just 15 years but for 100s of years. And the ones paying the price are downstream of the site. This is not acceptable. Do not put the cleanup dump on the Oak Ridge Reservation. Take the reservation waste out west. The cost is worth it. Lives are at stake.

Part 2 (from November 7, 2018 public meeting): I'm a retired aerospace and automotive engineer and I represent myself and my family and Oak Ridge, not by any responsibility given to me, but I love my neighbor. My neighbors are also downstream. And none of my relatives are downstream, but I care and love those people downstream. You are going to have accidents.

And, by the way, thank you very much for putting on this gathering. I appreciate that very much. I didn't know anything about this until I got something in the mail, and I do appreciate that.

My question is along the line of this particular site you currently have, how long has that been in existence. 15 years? Has any other site identical to that been in existence anywhere in the country or in the world? Just one little question I had first, please.

DOE Representative: There are facilities that have been around longer than that. There are facilities in Missouri and Ohio and out West with a roughly similar design that have been longer – in place for 10 to 20 years longer. Of course there are disposal facilities that have been around for a long as people have been disposing of garbage, but these more modern designs came into play beginning in the 1960s and 70s.

Larry Gustafson: Okay, and the new one you're planning on is an improvement on the old one, correct?

DOE Representative: It's more similar to it than different. The preferred site would allow us to avoid, or at least minimize, the use of any underdrains to convey groundwater out from underneath the site. But in terms of the basic design, dikes, leachate collection, liners, impermeable cap, that would all be pretty similar. There have been some lessons learned from the last facility, and we want to always take advantage of what we learned to do better the next time around. But it's pretty similar to that facility.

Larry Gustafson: Lessons learned is a result of lack of perfection in the previous design. And that means someone downstream wants perfection, and I expect perfection, and there's no way anybody is going to

have perfection in whatever you're planning. It is not a negative against you. Don't get me wrong, please. I'm not attacking. But it is not going to work. In the end, there are going to be mistakes. There are going to be people downstream with the health and the environment being damaged in ways we have no idea because science can't even determine what that is today. So if it's 15 years or 60 years, that's not 1,000 years, that's not 2,000 years. We have no idea how to predict what a failure here is going to do to someone downstream, and I mean in time also. So I would have to say right now, based on some of the comments – I'm assuming all these comments that have been generated by these wonderful people, great knowledge, far beyond what I have for this kind of environment, I think I would never support anything that's being done anywhere near Oak Ridge.

And the one comment about an earthquake, yeah, I had the same question. Other comments that were brought up in here, I've got the same questions from the beginning of this conversation here. I cannot support going on with this thing. You'd have to be too perfect in order – nobody expects anyone to be perfect, but you have to be that in order to guarantee the health of the environment and especially the people downstream. Thank you very much. I appreciate your listening.

Comment 14: Comment from Robert A. Morris, P.E.

I attended the public meeting on the EMDF on November 7 at the New Hope Center and I have reviewed various sources of information about the project. I believe the preferred location in Bear Creek Valley is the best solution to the low level waste issue on the Oak Ridge Reservation. Disposing of the waste onsite once all of the TDEC and DOE reviews have been completed and approved is the best solution for the environment and provides the optimal economic impact for the Oak Ridge community. My professional opinion as a civil engineer with over 40 years of experience in construction and land development is that constructing the EMDF in the Bear Creek Valley is the best solution. On a personal note, I live in Knox County just across the Clinch River from the DOE Reservation and within 3 miles of the EMDF site. My home utilizes groundwater via a well for drinking water as do a larger [sic] number of my neighbors in Gallaher Bend. I believe the EMDF design adequately addresses the requirements to prevent groundwater contamination.

Thank you for considering my comments as you finalize the review of the EMDF project.

Comment 15: Comment from John Hoffelt

I am responding to the Request for Public Comment regarding the Proposed Plan for the Environmental Management Disposal Facility (EMDF) in the Bear Creek Valley, Oak Ridge Reservation, Tennessee. The U.S. Department of Energy (DOE) published the Proposed Plan for the EMDF on September 7, 2018 and requested public comments by October 26, 2018 (now extended to December 10, 2018). The full name of the Proposed Plan is "Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Waste."

The Proposed Plan documents that The State of Tennessee does not approve of the Remedial Investigation and Feasibility Study (RI/FS - last draft dated February 8, 2017). DOE issued the Proposed Plan despite not collecting supportive data or obtaining an approved RI/FS on which to base the Proposed Plan. With this action, DOE circumvents and short-circuits the CERCLA process and intent by issuing a plan that (1) is not based on substantive evidence documented in a peer-reviewed and agency-accepted Feasibility Study and (2) is not supported by the State of Tennessee.

CERCLA, and its implementation by the U.S. Environmental Protection Agency, clearly expects that the RI/FS process be used to gather information sufficient to support an informed decision regarding risk management and a selected remedy. A Proposed Plan is supposed to be developed and based on

information and results provided in the RI/FS (see 42 U.S. Code Chapter 103, Section 121, (f)(E)(ii); Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, EPA/540/G-89/004; and “About the Superfund Process, RI/FS”, www.epa.gov/superfund/about-superfund-cleanup-process#tab-4). Because DOE circumvents and short circuits this process, it is evident that DOE has selected a predetermined outcome (which may be arbitrary and capricious) based on convenience and ease of implementation rather than on rigorous scientific scrutiny of site characterization data and remedial options (including waste types, volumes, and treatment technologies).

In the Proposed Plan, DOE anticipates obtaining waivers of applicable or relevant and appropriate requirements for waste disposal sites. This fact shows that the proposed site may not withstand scientific scrutiny for protection of human health and the environment. Furthermore, the Proposed Plan lacks any consideration of waste reduction or treatment options, which may provide relief from the need to dispose of the entire waste volume and may result in a better expenditure of funds and allocation of resources.

DOE should (1) gather sufficient site characterization data to determine whether the disposal site in question (Central Bear Creek Valley) meets the requirements for mixed-waste disposal and (2) consider waste reduction and treatment alternatives before proposing a plan for onsite burial of the waste.

Comment 16: Karl L. Chance, P.E.

I dislike public speaking, so I appreciate the opportunity to include my comments in written form. I would also like to commend Mr. Brian Henry and Mr. David Adler on their composure and attempts to provide answers to specific questions at the public meeting.

Since several of the people who provided verbal comments at the public meeting included a brief summary of their background, I will do the same. I have resided in Oak Ridge since 1969 (I live in one of the so called “Alphabet Houses” that were constructed as part of the Manhattan Project). I grew up here. I am a product of the Oak Ridge School system. I am a Professional Engineering [sic] registered, and in good standing, in the State of Tennessee. I have a variety of experience including the design, construction, and permitting of landfills and landfill caps in various locations across North America.

As full disclosure, I am employed by AECOM (since 2005) and I am currently supporting UCOR at the EMWMF and the ORRLFs. I am aware of the EMDF but I am not assigned to support the EMDF project.

I attended the public meeting as a city resident and my comments are my own as a city resident.

Below are the comments that I wish to make in (no particular order):

1. If I recall correctly, Mr. Adler indicated that it would be beneficial for disposal operations to begin at the EMDF before disposal operations were completed at the EMWMF – an overlap of waste disposal operations. Later Mr. Adler indicated that disposal operations at the EMWMF were currently scheduled to end in 2020 (if I heard correctly). Mr. Adler also indicated that the ROD for the EMDF was anticipated in 2019.

Mr. Adler indicated that the EMWMF is filled to approximately 75% of its design capacity after 16 years of operation. Doing the simple math, if the waste disposal rate continues at the same rate overall rate [sic] the remaining 25% of the capacity would take approximate 5.3 years, meaning the EMWMF would be filled in 2023 (provided the waste disposal rate does not increase or decrease).

- a. Based on the forecasted waste generation quantities, what is the anticipated date when the EMWMF will be filled to capacity?

- b. Considering the time frame for the remaining life of the EMWMF 2020-2023, is there enough time to address public comments, finalize a design, secure regulatory approval, prepare a RFP, solicit bids, award a construction contract, construct the facility (and infrastructure), and get approval to accept waste prior to the filling of the remaining airspace in the EMWMF?
 - c. Follow on question: Is there any consideration to trying to streamline the process?
2. The EMDF is following the CERCLA process (similar to the EMWMF). It is my understanding that the CERCLA process includes the requirement to meet the substantive regulatory requirements (meaning that it must comply with the regulatory requirements) without going through the full regulatory process. So the EMDF, being an engineered landfill, it would have to comply with the landfill regulations but would not get a Landfill Permit. Again, it is my understanding that the CERCLA process was established to streamline the process to provide a faster route to protect human health and the environment.

Has DOE considered that it might be simpler (and perhaps faster) to just apply for a hazardous waste permit for a disposal landfill from the Tennessee Department of Environment and Conservation, Division of Solid Waste Management?

3. If I recall correctly, it was stated during the public meeting that the EMDF is a 70 acre site. This generally would include the required buffer area around the actual waste disposal area that is not actually contaminated.
- a. What is the area of the actual limits of waste of the facility?
 - b. What is the area of the contaminated sources (degrading buildings, exposed contamination areas, etc.) that are anticipated to be disposed of in the EMDF?
 - c. Is the final disposition of the contaminated source locations to be “greenfield” (non contaminated) or “brownfield” (suitable for industrial re-use).
 - d. What is the anticipated reduction in the contamination footprint?
 - e. Would it be fair to say, that even if the foot [sic] was equal to the EMDF site (70 acres) that by placing it in a condition that is slower to degrade (an engineered landfill) than its current condition, it would represent a reduction in the health risk?
4. Similar to Question 5 [sic] but as it relates to the EMWMF:
- a. What is the area of the EMWMF facility (including the buffer area)? What is the area of the actual limits of waste?
 - b. What is the area of all the contaminated sources of the waste that went into the EMWMF (i.e., Bone Yard –Burn Yard, IHP, degrading contaminated buildings such as K-25, K-27, K-29, etc.)?
 - c. Is the final disposition of the contaminated source locations to be “greenfield” (non contaminated) or “brownfield” (suitable for industrial re-use).
 - d. What is the actual reduction in the contamination footprint?

5. What is the geologic formation that underlays the proposed site location? Is this formation considered a karst formation? If so, is it a karst formation that is highly susceptible to dissolution erosion or has low susceptibility to dissolution erosion?
6. The geomembrane portion of the liner system is a high density polyethylene (HDPE) product.
 - a. How long is this product expected to perform as designed?
 - b. Is this a conservative estimate (meaning it probably will be effective a lot longer but the expected effectiveness is not over estimated)?
 - c. Are there any recent studies that show that the effectiveness of the product is substantially longer than previous projections?
7. I realize that it is late in the process to consider alternative products but have you considered other geomembrane materials, specifically a bituminous geomembrane?
8. The liner system also includes a compacted clay liner. How long is the compacted clay liner portion of the liner system expected to perform as designed?
9. If I recall correctly, it was stated in the public meeting (or on one of the slides) that the EMDF is greater than 1 mile from the nearest residential area. Looking at a map it would appear that Greystone Drive is the closest residential area and appears to be approximately 3,500 feet away from the EMDF. It is possible that I misheard the distance and it was intended to be “more than 1,000 meters” which would be about 3,300 feet.
10. There were a couple of comments regarding the groundwater table. I am aware that there is a difference of opinion regarding the groundwater levels under the EMWMF and that some of that may be prompting the comments regarding the EMDF site and preliminary design. Some of the landfills that I have been associated with use soil material that has to be removed from future cell areas to get to those cell base grades, as daily cover. As the soil is removed the groundwater table is lowered in that area, most likely due to a drop in the surcharge weight as the soil is removed. My comment is has the groundwater table been evaluated based on the removal of overburden soils that will be done as part of the construction and then again based on the final grades, including the cap, to estimate where the groundwater table is projected to end up. I realize that this is a very complex model that would need to take into account the seasonal changes, precipitation, current groundwater flows, etc. My question involves only the impact from the surge charge weight of the current over burden that will be removed and the weight of the landfill liner, waste, and cap materials.

Comment 17: Comment from Ken Rueter, President and Chief Executive Officer of UCOR

As a resident of Oak Ridge, I am submitting my comments on the Proposed Plan for providing additional onsite disposal capacity for waste generated from the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) cleanup at the Oak Ridge Reservation (ORR).

In short, I support this Proposed Plan and concur on the plan to construct the engineered landfill in the Bear Creek Valley area of the ORR – it is not just needed, it is essential for cleanup to enable mission critical work at Y-12 and ORNL.

We have had significant success with on-site disposal supporting cleanup at ORR. DOE’s experience with the existing landfill over nearly two decades has shown that the new facility can be operated safely and compliantly. Strict regulatory criteria govern the types of waste that are disposed of onsite. The wastes are

mostly comprised of building and other debris, containing minimal contamination. In fact, approximately 95 percent of the volume of cleanup waste on the Oak Ridge Reservation has gone to the Environmental Management Waste Management Facility and other smaller onsite disposal facilities with the remaining, more contaminated waste being disposed of offsite.

Today, safe operation and continuous regulatory monitoring are the guiding principles of our landfill operations. Like the existing landfill, the new one will be built to the highest engineering standards incorporating appropriate safeguards to protect the public and the environment.

Exacting design criteria go the extra mile to incorporate safeguards that ensure safety for at least 1,000 years. Federal and state regulators would provide weekly monitoring of the disposal facility, including hundreds of samples used to analyze the surrounding air, groundwater, and surface waters.

As we continue to support DOE in preparing for the remaining large-scale cleanup work at ORNL and Y-12, we recognize that our work is critical to enabling vital ongoing and future missions at the world-class research and production facilities in Oak Ridge. At the same time, we are protecting the environment and reducing risks to residents across the region, all the while, benefitting local jobs and the economy.

In contract [sic], if we have to dispose of the waste offsite, we are presented with many challenges. Offsite disposal would require transporting waste to ETP and offloading it to prepare and load it for offsite transportation, which would present risks associated with double handling of waste. Risk assessments for offsite disposal conclude that 2.5 fatalities and four injuries could occur if waste is shipped offsite by rail. Twenty-six fatalities could occur due to vehicle emissions plus seven fatalities due to vehicle accidents along with 124 injuries if shipped offsite by truck.

According to the cost estimates included in the proposed plan, offsite disposal is approximately 100 percent more costly than disposing of the waste onsite. In addition to being less safe, offsite disposal can also lead to losing local jobs associated with constructing and operating an onsite facility, resulting in an adverse impact to our local economy. These jobs will move to other areas of the country.

My family and I live, work and play in Oak Ridge. As an avid cyclist, I treasure my job of cleaning up and safeguarding this community's beautiful environment while ensuring its sustainability. For this reason I wholeheartedly endorse moving forward with the proposed Environmental Management Disposal Facility, which would be constructed and operated beyond UCOR's contract as the ORR cleanup contractor.

Comment 18: Comment from David Olsen

Part 1: I am a retired nuclear physicist from ORNL, live in the city of Oak Ridge, was a manager in the SNS Project, and want to express my concerns over the proposed UCOR DOE on-site disposal facility in Bear Creek Valley in Oak Ridge. I strongly believe that this project is seriously flawed and should not go forward. I have three main objections.

First and foremost is the ground water concern. Unfortunately, the water table in Bear Creek Valley is surprisingly not very deep. This fact by itself negates the proposed project. Instead it is proposed to change the requirements and regulations to allow the project to go forward. In particular to build under CERCLA brown field regulations and even then the facility requires waivers [sic]. The project requires a barrier just above the water table and indefinite monitoring with backup pumps etc. in case of flooding. It is just plain silly and risky to build this in such a very wet environment requiring active and indefinite surveillance. If it cannot be built under green field regulations with no waivers [sic], then it is DOE's duty not to proceed and

further endanger the ground water of the citizens of East Tennessee. Furthermore, it is hard to understand why DOE would contaminate an uncontaminated green field site on the Oak Ridge Reservation.

Second, according to UCOR much of the waste is uncontaminated. Perhaps UCOR could do a better job separating the waste into that which is contaminated and that which is not contaminated. The uncontaminated waste could then be disposed reducing costs in normal construction waste facilities [sic] and the contaminated waste shipped by rail to a much dryer, deeper and unpopulated site out west.

Third, the cost difference of about one billion dollars between this facility and shipping the waste out west seem [sic] to me to be a manufactured number by UCOR to justify its construction of this facility in Oak Ridge. In particular:

- (1) Two million cubic yards of material require 20,000 rail cars over a period of ten years or 40 trains of 50 cars each year. How does this cost one billion dollars? In either case, the waste must be initially loaded and transported in trucks. Do the costs fairly compare apples to apples? After talking to UCOR representatives at public meetings, I personally believe not.
- (2) Another justification is the danger of shipping waste across many states and the need to minimize the associated regulatory risk. At the same time, the plan requires 10% of the more toxic waste to be shipped out west through the same states. The regulatory risk exists with or without shipping all the waste out west. If 10% of the more toxic waste is to be shipped out west, then the simplest solution is for all the waste to be shipped to a dryer and less populated site out west.
- (3) During the two public meetings I attended, it was my impression that the cost of different options was not fairly costed, but costed to justify the project. I strongly suggest that an independent institution, not UCOR or beholdng to UCOR or DOE [sic], review and certify a cost comparison.

It seems DOE is not following the very basic principle of reducing risk to help insure [sic] a successful project, and could easily end up with an environmental mess of its own making.

Part 2 (from November 7, 2018 public meeting): My name is David Olson and I have a simple question. You spoke that 10 percent of the waste that you are generating is high-level waste. So my question is: Where does that high-level waste go, and how does it get there? And it represents about one-tenth of the waste you are generating.

DOE Representative: About 10 percent of the waste from tearing down the buildings and digging up the dirt is project to be waste that won't meet waste acceptance criteria. So it's not legally high-level waste, but it's more contaminated than our rules would allow to be onsite, the disposal. That material will be generally dispose of offsite; much of it in Utah, some of it at DOE facilities out in Nevada. But it will generally be shipped away.

Mr. Olsen: So it goes there by train?

DOE Representative: It will go by truck and train.

Mr. Olsen: So 10 percent of the waste you are generating ultimately goes out west by truck or train?

DOE Representative: That's approximately the experience we've had cleaning up ETTP, and it's what we project for Oak Ridge National Lab and Y-12 also.

Mr. Olson: Thank you

Comment 19: Comment from Cordelia Lyons

Part 1: The decision on the EMDF should be carefully considered and not rushed. This waste facility has the potential to severely affect ground and water quality for centuries. Extend the EMDF Comment period.

Part 2: The preferred solution is to ship the waste by rail to a less environmentally sensitive location - for example an area in the western US with an extremely low water table away from population centers.

Choosing a solution before all ground water impact testing is complete (per David Adler) just screams that a decision has already been made regardless of environmental impact.

Comment 20: Comment from Cindy Kendrick

As a former Oak Ridge resident and someone who enjoys recreation downstream of Oak Ridge, I find the proposed EMDF objectionable. Our area, with its ample rainfall and high water table is inappropriate for long-term disposal of radioactive and hazardous wastes. I believe that deployable engineering and administrative measures are inadequate to overcome the risks of our humid environment and that shipment to an appropriate off-site disposal facility in an arid, sparsely populated area is an affordable and lower-risk alternative.

Thank you for the opportunity to comment.

Comment 21: Comment from Brian Paddock (from November 7, 2018 public meeting)

Part 1 (from November 7, 2018 public meeting): My name is Brian Paddock. I'm an attorney. I practice environmental law in Tennessee. I'm former legal chair of the Sierra Club's Chapter of Tennessee. I went to the TDEC open house where they had a poster show and their show was much different than the one you saw in the hallway here, because basically it showed all of the unresolved problems of this plan.

This plan has been through seven iterations among the agencies, and you have one in which two of the agencies that are involved with public health and environmental protection do not agree to it and have identified a number of very serious problems. The site has not been properly characterized. Apparently, they think they can build a dam – they can build a dump right over the top of flowing underground water. TDEC would never allow that for the simplest garbage dump in Tennessee. They have not got waste acceptance criteria. They say, oh, we're not going to take this, we will take that, so forth and so on, but those waste acceptance criteria should have been built into this plan in detail before this hearing was ever held so you would know what you were really getting into and what was really going into that.

And no final approval can ever be given under CERCLA to a situation where that approval acts as an approval of waste acceptance that's done after public comments are over, after the problems begin to arise. And the representation that the current dump was operated safely is simply untrue. Go back and read the newspapers. It got flooded, a cell wedge broke, radioactively affected water got offsite, a contractor was fined. They just – you know, they don't seem to have learned any of the lessons of how you try to do this as safely as possible from the first operation.

So I drove an hour and a half to have three minutes, but I think that we're kind of wasting our time here because they're not really telling you what they're going to do, how they're going to do it. And I can tell you, from talking to the solid waste people in Tennessee, which I do frequently, that the plans they have for this location and the engineering, would never be approved for an ordinary garbage dump, let alone for a hazardous waste dump. Thank you.

Additional Comment from Brian Paddock: Thank you. Brian Paddock. On your website, you have a description of CERCLA and how it's supposed to work, and it has been noted, and I, as an attorney, I agree that it is not suitable for actually managing the disposal of the hazardous waste that CERCLA and the Superfund law intend to deal with. And I think one should not overlook these requirements where the State and you are to pick out which of the – which of the State's regulations, which of other federal regulations are to be applied here; for example, the standards for a hazardous waste dump site and how it's to be monitored and how it's to be supervised.

The other thing the CERCLA sheet says is that community involvement is critical to CERCLA, and it has this in a little box. And it says, "DOE has established a 30-day comment period during which time local residents and interested parties can express their views and concerns on all aspects of the plan." We don't have all aspects of the plan. "DOE has scheduled a public meeting to discuss cleanup alternatives and to address questions the public may have." And it says, at the end, "Upon timely request, DOE will extend the public comment period by an additional 30 days."

Now, let's look back at how we got to this, which is that originally the comment period was going to be from the beginning of early September to December 10th. Then you were going to have a hearing on October 18th, which you canceled on very short notice. Luckily, I had not started traveling when I got that word. And now you have this at the very end of a period, and you've made your best case here, but you're certainly not being fair to the public when you say, well, we used up most of the time for public comment, without giving you any particular information except the whole plan if you wanted to read it, and then say from now on get this to us by December 10th. You're not going to do anything over Christmas with what we say on December 10th, if we file it at the deadline, and you're not going to get down with the TDEC people, and you're not going to get with the EPA people and resolve all these uncertainties and unknowns. So I suggest you go ahead and extend the comment period. And I suggest, further, that for those of us that are concerned enough to have commented here tonight, you email us each time you have made progress and have specifics about what you are doing about things like the waste acceptance criteria and other issues that have been raised here. Thank you.

Part 2: As was explained at the public hearing which I attended, the Department of Energy now plans an additional landfill similar in size and scope to the current on-site facility, but regulatory documents that would authorize its construction and operation have yet to be approved by either the state or federal regulatory agencies.

The DOE request for public comment is premature. The public, in addition to the regulatory agencies, must have a chance to comment after all the information that DOE is promising (and should have already delivered) about site suitability, waste acceptance, and waivers of regulations is actually available (if it ever is).

DOE's "plan" for an expanded landfill dump for mixed radioactive waste has been poorly conceived and inadequately researched and prepared despite the several iterations of the plan.

Endless hours of careful research and analysis by the Tennessee Department of Environment and Conservation (TDEC) expert staff with a wide variety of expertise in geology, biology, landfill siting and engineering and the special problems of landfill disposal of radioactive and dangerous chemicals in karst with resultant problems or pollution transport via groundwater, have been offered to your agency in writing and in many face to face meetings.

Your agency has resolutely avoided engaging with the omissions and inadequacies of your plan. TDEC's ongoing criticisms of your plan set out in writing and in a TDEC public meeting with explanatory exhibits

demonstrate that you are repeating avoidable errors made in the siting and operation of the existing radwaste [sic] landfill.

As an [sic] lawyer, I concede that CERCLA is an inadequate framework in some respects, since it does not directly embody standards (prescriptive or functional) for the disposition of hazardous and toxic wastes in ways that assure neutralization or isolation so that threats to human health and safety are avoided. However, your disregard of the existing State and Federal regulatory standards for hazardous waste isolation found in the Clean Water Act (CWA) and Resource Conservation and Resource Recovery Act (RCRA), for example, is inexcusable. The state regulations under the authority delegated to TDEC and our Boards for Water Quality and Solid Waste have been largely ignored by your plans.

As an attorney for communities that are faced with proposals for Class I and II landfills, I am familiar with our solid waste permit processing, siting rules, and engineering requirements. I have attended many TDEC public hearings on proposed permits for landfills. The proposed site is unsuitable as it stands. I understand the desirability of a site near the existing landfill and the difficulty of avoiding the hazards of the karst geology of Bear Valley. It would be much wiser to more fully and carefully characterize the site as well as areas nearby and locate a smaller footprint [sic] site at which all hazards and deficiencies have been identified.

Please do not expect TDEC ever to agree to a site which lies, even partially, below the water table (with the wide variations in elevation seasonally in Bear Valley). Likewise, a site footprint which lies above groundwater conduits must be rejected.

The facility footprint should not cover the wetlands area on the east of the currently proposed site, and should encroach as little as possible toward the Maynardville contact.

I note that the TDEC text expressing non-acceptance of the plan deals mostly with siting issues and applicable, relevant and appropriate regulations (ARARs). TDEC does not adequately question the suspect cost analysis, nor do they question DOE's discussion of the waste inventory or capacity demand. All of these defects remain in the plan and its justification.

The large footprint is, like the desire for a quite generous Waste Acceptance Criteria (WAC), apparently driven by contractor assertions. The footprint size is not supported by any actual analysis of the anticipated volume of CERCLA waste generation that is appropriate for on-site disposal. Reduction of the footprint by 30 to 50 percent would make evaluating and delineating a more adequate site, with lower risks from the karst and groundwater challenges significantly easier.

Should political pressure result in acquiescence by TDEC or EPA, be advised that any waivers or variances which present significance risk of pollution release or transfer via groundwater will likely be challenged in federal court.

DOE has some language about Waste Acceptance Criteria as an example, referring to the Environmental Management Waste Management Facility (EMWMF). You also mention tri-party approval of waste handling plans for waste going into the facility but, under the current system, clear and specific waste handling plans should be approved prior to detailed characterization. In other words the WAC standards and process should be detailed explicitly now and before the plan was presented for public comment.

Both the EMWMF WAC, the protocol for approving waste for disposal as well as failure to adequately characterize the site, have been shown by well documented history and experience as root causes of some of the more spectacular failings of DOE on-site disposal in Oak Ridge over the last two decades. I believe

any poll of those actually working on radioactive and toxic waste management would support this conclusion.

You have received several expert comments from those who have studied the EMWMF for lessons learned and have analyzed the several iterations of the plan DOE now presents. Likewise you have comments from residents and public officials asserting many legitimate concerns. I respectfully suggest that DOE promptly start gathering the site characterization information, draft WAC criteria and processes, and do the analysis necessary to reduce the landfill footprint. This and other problem solving actions should be accompanied by honest acceptance of criticism of defects in the plan and by open and honest dialog with the Oak Ridge community.

To file a Record of Decision in the face of so much adverse comment of all types and the lack of acceptance by TDEC and EPA will likely drive the CERCLA process into a dispute loop or litigation, or both, which will not solve the real problems but will delay adequate acknowledgment of the issues which must be addressed before a plan can be approved.

Comment 22: Comment from Sue Jones (from November 7, 2018 public meeting)

I am Sue Jones. I don't live in Oak Ridge, and I don't own any property around the reservation, so I don't know whether I'm much of a stakeholder or not. I also really don't have a position on what DOE is proposing here, because they hadn't given us that much information yet, as Brian Paddock was saying. If they want good public input, come back, you know, later and ask, after you've got some waste acceptance criteria or some preliminary waste acceptance criteria. Come back after you've really got a water table out there at the site. You know, come back with better information and ask the public then.

So I really kind of just showed up not so much to make comment, but to share some insight that I have on Oak Ridge radioactive waste management. A few of my retired colleagues and I, we put together some information, really, on how onsite disposal or CERCLA waste has been going here historically, and I brought in a few copies to distribute, if anybody wants them. Some of you folks have already seen this. I probably didn't bring enough copies.

And I just kind of want to conclude with kind of a big-picture statement. It seems to me that Oak Ridge Environmental Management, they've been kind of occupied with reducing the visual footprint. You know, it's a pretty big task just to keep the demolition going, keep the money flow going, keep the workflow going, and deal with health and safety. And I think they've done, you know, a reasonable job on that. But I think maybe they have kind of lost – they've sort of not really examined how effective some of these actions may be, particularly effective long term in terms of protecting the health and environment and reducing releases to the environment.

And I'm glad to see, you know, so many people here tonight. I'm probably the only person in the room that read pretty much all of the administrative record, because I date back even before some of the contractors who were writing more recent ones. So I just encourage everybody to – I've got stuff to distribute that basically verifies some of what Mr. Paddock was saying about problems with the first facility. I think we solved a lot of problems with the first facility over time, but we don't want to set ourselves up for having to do that again in an ad hoc manner. I'm going to go to the back of the room and hand stuff out.

Comment 23: Comment from Ron Woody

Part 1: I am writing on behalf of the Oak Ridge Reservation Communities Alliance (ORRCA) to request that DOE extend the comment period by 45 days. Such an extension is necessary to allow ample time for ORRCA members to review the proposed plan and discuss at their next meeting, scheduled for

December 4th. DOE did not have a representative at ORRCA's September 4th meeting, and members were unaware of the decision to issue a proposed plan until the public notice was published on September 10th.

As elected officials, we have a duty to protect the health and safety of our citizens. The proposal to bury an additional 2.2 million cubic yards of radioactive and mercury-contaminated hazardous waste in our jurisdiction is an extremely complex and serious issue, especially given the groundwater contamination we already face.

Part 2 (from November 7, 2018 public meeting): I'm Ron Woody Of course I'm a Roane County executive and represent the Roane County constituents, a lot of them, and I notice when I go to a lot of meetings, of source, the – very few of Roane Countians are (sic) downstream. We have some in Oak Ridge/Roane County that are still upstream of this and of the Clinch River.

I'm an accountant. I'm not an engineer. I do not know much about landfills, other than we operate one in Roane County that's closed. And from that closed landfill, we've had the experience, of course, rainfall penetrating from the top, water coming up from the bottom. We started out with a leachate collection system with a tanker truck. We've gone to the tanks similar to what you-all have here, and now we're going to have to build a pretreatment facility on a landfill that's been closed, goodness, probably 20 or 25 years. So I know some of the basics about landfills, and I know you want to keep the water out of it.

We are downstream of all Oak Ridge. And that's always concerned us. So we are a stakeholder. We've had issues back during the Manhattan Project era, and then post-Manhattan, I know. And I'm really advocating to clean up the site. I appreciate the work that's been done at ETTP. I know it will help us to get what I would consider the landfill, which is in the air right now, in the ground. But, please, as you do your work, remember us. We are – I've thought before if Knoxville was downstream instead of Kingston, you know, would we be having these discussions like we are now. We – we're in a unique position.

And I hate to say this, I hate to keep bringing it up, but your sister organization, TVA, you know, we are dealing with the problem that happened in 2008 in the ash spill. It's back in the media today. And we find out today, as the court case has – the jury has come back, that we were not treated like we had felt we were being treated by a government agency. I'm from the government. I'm here to help you. I mean, I work for the government. I understand some of this, but as we go through this process – I appreciate you-all extending the time, too, so folks like myself can make some public comment because we have a lot of other activity going on in our community.

So let's, if we're going to do it, and we're going to it here, I say let's do it right. Let's work on the leachate system. You know, we went from the collection, hauling it off, to now we have to pump it off. So we go directly into a, you know, municipal wastewater system. So there's a lot of concerns that I still have representing Roane County's 52,000 residents. And just to say it again, you know – and I've said this in a couple of venues – as Tennessee has grown in population, Roane County, has shrunk in our population. Part of it is probably due to perception, part of it may be due to reality, the perception of what happened to us at the TVA Kingston ash spill, and also the perception since two of these three facilities are DOE are, of course, located in Roane County, and we're downstream of all of it.

We know the important of the cleanup mission. We also know that we have 54-58 inches of rainfall a year. We do not want any of the waste to escape these landfills and seep down to us and on down to Chattanooga.

The good thing about the Nevada sites – I was out there a number of months ago – is ----- [cut off based on time constraint; elected to not continue comment]

Comment 24: Comment from Darcy Holcomb (from November 7, 2018 public meeting)

I'm Darcy Holcomb, and I'm here representing EQAB, the Environmental Quality Advisory Board, with the city of Oak Ridge. And while we thank DOE for their plan that they've provided for us, we feel like that it has a number of serious flaws. We also think that CERCLA is designed more for cleaning up contaminated property, and we feel like that your preferred choice is to take a clean site, look at the whole reservation, and you're just kind of moving the waste around. So you will actually be contaminating a portion of that site that we feel like has value. It's a clean site, the Central Bear Creek Valley, and that it also – 70 green acres is not remediation. We feel like that's the exact opposite.

We also feel that the recent well samplings indicate that the groundwater table does not meet TDEC and EPA requirements, as noted by EPA on August 16. And DOE says this will create jobs, but we don't feel like that this would – okay. We feel that this would create jobs no matter where that waste is disposed of, whether it's here or offsite, and we don't believe that trashing Tennessee's future, it's not a viable jobs program for us.

We also don't agree with the onsite disposal, it is safer, because we believe that the onsite disposal is predicated on – well, we're saying that transportation of every type has gotten safer over time and, overall, U.S. motor vehicle deaths dropped by half, fatalities dropped by a quarter. And so we don't think that – and DOE is known for having a good transportation record. So they reported zero incidents in transit, sending extremely hazardous waste 1300 miles away to the WIPP facility in Carlsbad, New Mexico. Compared to the toxic hazards to what residents from the ongoing leaching of the mercury into our underground aquifers in rainy East Tennessee, offsite disposal at a dry, unpopulated site is safer.

We also looked at the graph. I guess it's a cost proposal graph. It was on, like, page 15, maybe. We're not sure where the original figures came from, but we believe that there are a lot of assumptions in doing an economic analysis that weren't looked at, like a learning curve. Most any process gets significantly cheaper per unit as people get more productive, and basically you say the offsite disposal is a flat cost over time. Bulk transportation tends to get more mechanized and automated; economy on scale, every process gets cheaper per unit. So we think there's probably at least seven assumptions that weren't taken into account when you looked at the cost of offsite disposal.

We also looked at the fact that DOE has stated at the outset in the plan, and in other venues, that they will seek waivers for at least three significant elements – reducing required height of water table, restricting maximum permissible uses of surface water and groundwater, an exception with respect to the handling of mercury. This is like saying we will sell bladeless knives without handles. If the site is perfect, why are any waivers at all needed? And under these conditions, we think RCRA is a more appropriate process. If a private sector entity entered a deal with the reservations like this in mind, they would be accused of negotiating in bad faith.

So we just have several issues. We also know that, like you said, there's issues with TDEC and EPA that also need to be resolved. So I'm not even going into that. But we feel like that there are a lot of issues that still need to be addressed. Thank you.

Comment 25: Comment from Martin McBride

Part 1 (from November 7, 2018 public meeting): Thank you. Martin McBride. Retired from DOE and living in Oak Ridge here. Oak Ridge is a beautiful city. And I think it's worth mentioning the elephant in the room in all of this discussion, which is, one of the reasons that the waste is coming here is because nobody else in East Tennessee is willing to take it. Now, that has a significant economic connotation to it. The waste is not a neutral entity in terms of the Oak Ridge economy. It's a drag on the Oak Ridge

economy. And what my two cents' worth is, I think you folks should take the lead in analyzing what you can do to help the Oak Ridge economy.

One of the reasons that we can't get the same money, \$8 million a year, that Los Alamos puts in its schools is DOE does not understand how to justify that to Congress. And one of the reasons it doesn't understand how to justify it is that DOE tends – and I myself have been guilty of this – to overlook the economic impacts on the local communities.

But if we rack those things up, number one, there's a whole bunch of things that you – your program can do, not only to help us directly, but to set the example for the other programs to help them. You guys are all very, very busy, and so if you help break through on some of these areas, they'll see how to do it, and they'll go ahead and do it, too, and now you have a better relationship, you have an active partnership.

On the other hand, if you continue on this path, which I read at least one of your economic studies, and it was a regional study. The only problem with that is you're not storing the waste all over the reason where your economic benefit is. It totally ignored the city. If you actually focus on the city and the things you can do to help, then you will get this partnership. If you don't, if you just bulldoze past the city's economy, overlooking it, you're going to burn out a lot of goodwill here. And that goodwill then means that the UPF project doesn't have any goodwill, the nuclear programs at ORNL are not going to have that goodwill. And it's just there's a lot of bad things that potentially could happen down the road, depending on how sensitive you are and how much leadership you're willing to show here. So I think it's really important.

I've got a whole list of items and suggestions which I will write up and submit to you. I'll also put it in a newspaper column for other people to see. I just think these things are easy to do, most of them don't cost a dime, and they're things that would make it clear that you are a partner with the community, not just somebody coming in to exploit the fact that we're willing to take the waste and nobody else is.

Additional Comment from Martin McBride: I would just like to second the comments made by Mr. Watson and Ms. Smith. I was in a meeting not too long ago over in Knoxville, a training session. After the training session, a group of folks were sitting around talking maybe three or four people sitting in a group near me, and the discussion was who – why wouldn't you want to live in Oak Ridge, and their consensus was because they didn't want to live near all the nuclear waste, particularly on the west end of Oak Ridge. I don't share their concerns, but that is part of the bad publicity that the nuclear presence unfortunately generates. And I think the idea that you're starting from a neutral economic spot by putting a waste site here in this community is a false idea, which is why I, again, urge you to look for ways to partner economically with the City so we kind of balance this stuff out. Thank you.

Part 2: As I said at the public meeting, EM has the opportunity to be a real leader here---helping the nuclear programs of the other DOE program offices in the bargain.

Newspaper Column: Will DOE Under Secretary Dabbar and Assistant Secretary White Balance the Economic Burden on Roane and Anderson Counties Of DOE Nuclear Waste---Saving Taxpayers 800 Million Dollars?

In the years following the Three Mile Island accident, nuclear officials of my generation stood in front of the American public and promised two things---that future operations would be: (a) safe and (b) not economically burdensome to local communities.

It's important that DOE keep these promises.

Alienating neighbors next to your nuclear site---especially neighbors who have loyally supported nuclear operations through the years---makes absolutely no sense. It hurts the nation.

Leadership from DOE's Under Secretary Paul Dabbar and Assistant Secretary Anne White can help the department become a friend-and-neighbor to the 130,000 people in Roane and Anderson Counties---and save about \$800 million dollars. That's the estimated cost should DOE's proposed nuclear waste storage expansion---slated for Oak Ridge---need to be relocated.

Both Admiral Hyman Rickover (creator of America's Nuclear Navy) and the Reverend Martin Luther King, Jr. believed that having the courage to face reality was the first important step in solving tough problems. Officials in DOE headquarters, unfortunately, have had trouble facing the harsh truth that their important nuclear activities---while vital to the nation---can carry a substantial economic burden for local communities.

DOE's proposed storage area will create an economic burden for Roane and Anderson County residents, their children, grandchildren, great-grandchildren, and so on forever. The department needs to come to grips with this reality.

There are a variety of interesting options DOE could take to ease this burden, assisting local home-owners, businesses, and the area's great local school systems. Several would cost little or nothing and substantially increase public trust and support.

Over the last few decades, DOE's nuclear programs have gradually disconnected from the residents who live near the Oak Ridge site. Some years ago, this same type of disconnect cost DOE a major nuclear site in Colorado, the Rocky Flats site. A loss of local public support forced that plant to close, impacting the nation's defense and sending a multi-billion-dollar bill to American taxpayers.

The Anderson County Commission has formally requested a three-month extension of DOE's comment period on the waste area expansion. I hope the department will remember the Rocky Flats experience and use the three months to carefully consider the impact of its waste decision on future Oak Ridge nuclear operations.

DOE created the City of Oak Ridge. Yet consistently, the city has been forced to maintain one of the highest property tax rates and one of the highest per-capita city debt rates in Tennessee. What does this say about the wisdom of hosting DOE nuclear facilities---at any location?

For the good of DOE's future nuclear missions, Under Secretary Dabbar and Assistant Secretary White need to balance the economic burden on Roane and Anderson Counties from expanding DOE's nuclear waste storage area. The current DOE proposal does not do so and should be revised.

Comment 26: Comment from John Powell (from November 7, 2018 public meeting)

So my name is John Powell, and I am a resident of East Tennessee, also employed at Oak Ridge National Laboratory. To be clear, I'm not associated with the cleanup program at Oak Ridge National Lab. I'm associated with the scientific side of the house.

As most people here know. Oak Ridge National Lab, for 75 years almost to the day, has been one of this country's leading scientific institutions. There's a lot of important scientific work that goes on there and needs to continue to go on there, and the laboratory's future does depend on having an effective and an efficient environmental cleanup program.

As, Dave, as you've said, a lot of progress has been made in Oak Ridge cleaning up some of the reservations, certainly K-25, but much work remains to be done in the cleanup program at ORNL. We have almost 100 buildings, maybe more than 100 structures, that are still existence at the laboratory that are surplus to the science need, and they need to be demolished. Not only are these buildings in the way of new science facilities to do new missions, but many of them do have hazards. The buildings need to be demolished in a safe and efficient way, and the waste from that demolition needs to be managed in a safe and efficient way. And some of that waste would be suitable for onsite disposal in a properly engineered and design landfill.

So I've been working in Oak Ridge for almost 35 years. I've worked at all three sites. I understand the magnitude of the cleanup program that has to still go on. But I have worked with DOE for 35 years, and I understand that cleanup dollars have to be spent efficiently. If we're going to spend \$800 million to ship the waste across the country, that means a lot less cleanup will happen. And that is not in, certainly, the Oak Ridge National Laboratory's best interest. We need to make sure the dollars are spent wisely, while properly assuring safety and protection of the environment.

So with that in mind, my comment is that I support properly engineered and design landfill here in Oak Ridge to support the cleanup program and help ensure the scientific mission of the laboratory can go on for at least another 75 years. Thank you.

Comment 27: Comment from Wendy Robinson (from November 7, 2018 public meeting)

Thank you for the opportunity to speak. I'm Wendy Robinson. I've met both of you before. I'm here because my parents live on Tuskegee Drive in Oak Ridge, and I've lived here most of my life.

The residents I believe that Dave mentioned that were about 1 kilometer from the EMDF are my parents, and there are about 10 households on that street. And that's a concern, obviously, because I think the recommended distance is 2 kilometers, but that's just a detail, and I'm not a scientist.

But my main concern is the well water issue. Those residents are on well water. And, you know, they realize the site is probably going to happen. And we all support Oak Ridge and that's a definite. But I think the request on the table would be just to ask DOE to be reasonable about making these residents whole and maybe just supply a waterline to their house for city water. That's all I have. I think the residents have expressed that, but we just wanted to make that clear again. Thank you.

Comment 28: Comment from Virginia Dale (from November 7, 2018 public meeting)

Part 1 (from November 7, 2018 public meeting): Thank you for the opportunity to make some comments. My name is Virginia Dale. I am an environmental scientist. I am also chair of Advocates for the Oak Ridge Reservation, which is a 20-year-old organization that was established by the citizens to protect the reservation for diverse reasons – scientific research, economic development, history, education, recreation. We want this community to thrive and we want it to be better. And we know DOE is doing a good job, as best they can, we hope, to protect the environment. However, we have grave concerns about this plan. We think it's a bad document and it's a bad plan, frankly.

This was set up under CERCLA to have this dump site, and as we understand it, after checking with some attorneys, CERCLA cannot have a new job setup under a prior organization without – with a prior plan, the prior CERCLA effort, without going through a whole new process. This would set a new precedent for CERCLA, and all the lawyers in the United States should be concerned about new precedents when they occur.

It's been clearly made evident that dry is better, but here we are in East Tennessee, 54 inches of rain, a karst environment. This is not the ideal place to put this material. I do agree with that. We think that the waste sites out west that are asking for material should be having the opportunity to take more of the material. They would provide jobs in trucking and train and they would create a better economic environment for Tennessee.

I am trying to sell a house in Oak Ridge and one of the people that came through recently asked me a whole lot of questions about wastes that are here. They did not buy in Oak Ridge. They moved to Crossville instead. As we understand it, there has been mismanagement of the existing dumps, what filled up too fast. It took material that was misclassified and it took material that was not designated for this type of waste dump that's there. So we have no confidence that the future site, if it is put in place, would be managed properly.

TDEC has made clear that it wants further time to evaluate this site. Less than a year is not typical practices for this kind of activity, and yet they have less than a year of data available. Twenty years ago ACOR was part of a land-use plan that was put in place to help plan for things like the existing dump, and a plan was made, and this site was set aside as greenfield. Now, contrary to that plan that a number of stakeholders in this community were a part of, that is not happening.

We will put these comments in writing, but we ask you not to sacrifice East Tennessee or this part of the – of our national government and resources for what could be a resource for the waste to go out west and to keep people in East Tennessee valuing this beautiful environment. As a person who's grown up in Tennessee, I love being here, and I wish more people would realize what a great place it is and that we can take care and be responsible for those problems that were created 75 years ago. Thank you for your efforts.

Part 2: I am writing on behalf of Advocates for the Oak Ridge Reservation (AFORR), a locally based nonprofit organization supporting the preservation of the natural resources of the DOE Oak Ridge Reservation for the long-term benefit of DOE, the local community, and national and international interests.

AFORR appreciates the hard work of DOE, the Tennessee Department of Environment and Conservation (TDEC), and U.S. Environmental Protection Agency on the subject planning process under CERCLA.

AFORR does not support establishment of new disposal facility on the Oak Ridge Reservation (the Onsite Disposal Alternative) for the following reasons:

1. DOE's preferred site in Central Bear Creek Valley (CBCV) and the West Bear Creek Valley (WBCV) option would add to the inventory of contaminated land by putting waste in a clean area that is a greenfield.
2. We believe that DOE would not be seeking a new landfill, at least not this soon, if the space in the existing EMWMF had been managed properly. In particular, if waste had been characterized before disposal to determine the best disposal path, much less waste would have been placed there.
3. Based on available characterization data (noting that there is not yet enough hydrologic characterization of the CBCV site to support a decision), none of the candidate sites is [sic] suitable hydrologically. The presence of abundant surface and subsurface water would require significant engineering effort to manage, both through the operating period and after closure, relying on diversion structures, gravel drains, pipes, liners, and caps, that can be expected to fail in the long term, with life expectancy only of decades.
4. Proximity to residential areas would exclude these sites from consideration if the EMDF were being sited as a new radioactive waste disposal facility.

5. The proposal to establish a landfill on a clean site and call it a “remedial action” is a misapplication of the CERCLA statute. This landfill could not be built if it had to comply with the normal environmental regulations for landfills – even for ordinary municipal landfills. The landfill only becomes possible if DOE can use the special legal rules for CERCLA remedial actions to obtain exemptions from procedural requirements and to seek waivers of some substantive requirements. The special legal provisions of CERCLA were intended to facilitate rapid action to remove wastes from contaminated areas, not to allow establishment of new waste sites that operate for decades without being subject to regulatory oversight (for example, the ability of a regulatory authority to require modifications or stop operations when serious issues arise).

Additionally, we note that DOE has not provided sufficient information on some significant aspects of the analysis of alternatives to allow informed comment by the public. Accordingly, AFORR asks that the public comment period be extended to allow time for DOE to provide information on the following topics and give the public time to review and comment on the new information:

1. Details of waste acceptance criteria and requirements for waste characterization prior to acceptance.
2. Full details of the comparative analysis of costs for the Onsite and Offsite alternatives.
3. The specific waivers of regulatory requirements that would be requested for each of the Onsite options and the rationale for each requested waiver.
4. Treatment technologies that have been evaluated or are planned to (1) reduce waste volume in the disposal facility and (2) immobilize any mercury waste prior to disposal.

AFORR further notes that the lack of a site-wide environmental impact statement (EIS) for the entire Oak Ridge Reservation (as required by DOE rule 10 CFR Part 1021 and implemented at every other major DOE site) has contributed to the proposed plan’s failure to effectively address the long-term land-use implications of onsite disposal. DOE needs to initiate a site-wide EIS, with full public input as required under the National Environmental Policy Act (NEPA).

If the objections of the community are not considered and the landfill is built, then AFORR asks for compensation to the people of east Tennessee, to include:

1. Making permanent the conservation protection of the Three Bend Scenic and Wildlife Management Refuge Area, as was promised when it was established, and providing similar permanent protection for the old growth forest tract and other sensitive areas on the Reservation. Permanent protection should be accompanied by increased public access to these areas and increased compensation to the other agencies managing these lands.
2. Federal cash payments to the City of Oak Ridge sufficient to compensate for the financial burdens (such as costs incurred when city staff interact with DOE on various matters) to city government resulting from the city being the host to multiple ongoing DOE and NNSA activities.

Thank you for the opportunity to comment on this matter. AFORR looks forward to seeing additional information made available on the issues listed above, as well as other questions that have been raised by others in the community, before the opportunity ends for public comment on this important matter.

Comment 29: Comment from Mark Watson

Part 1: I am in receipt of Roane County Executive Ron Woody’s request as Chairman of the Oak Ridge Reservation Communities Alliance ORRCA) that DOE extend the comment period for the Proposed Plan for the Proposed Environmental Management Disposal Facility by 45 days.

As Oak Ridge City Manager, I concur with Chairman Woody's letter, and also formally request a 45-day extension from the current October 26, 2018 deadline on behalf of the City of Oak Ridge.

An extension is warranted and appropriate for several reasons. First, the City of Oak Ridge has not received answers to its questions and comments transmitted to the Department of Energy on July 10, 2018. Responses are needed in order for the City to make more informed comments on the proposed project. Second, City Council's October meeting schedule does not allow sufficient time for staff and Council to review documents, attend DOE's public meetings, and develop comments by the current deadline.

Finally, officials from the City of Oak Ridge, Roane County, and Anderson County will be attending the DOE's Annual Intergovernmental meeting in November. That meeting agenda calls for a special session to focus on DOE's Oak Ridge Environmental Management's Ten-Year Plan, which would certainly encompass waste management and disposal options.

Part 2 (from November 7, 2018 public meeting): Good evening everyone. My name is Mark Watson. I'm the City Manager of Oak Ridge and not knowing, I did not know the format tonight, so I have a very long presentation, but I think I will, I'd like to take a couple of the highlights of that, and I will pass this on the recorder as far as my comments today.

First off, we appreciate everything that you all have done. I have been talking with Mr. Adler for 5 years now on this project and as we move forward. We recognize the mission, we recognize everything that is going on with the Department of Energy, and its needs.

We have continuously tried to express the concern for the community and the community impacts as we go along. We are not at the table. This is a decision that is made by the Environmental Protection Agency, the Department of Energy, and the State of Tennessee. Most recently, I think, the Department of Energy has received comments from TDEC. We support those comments. I think they are well thought out, and all of the initiatives that they talked about should be carefully considered in what we look at as we move ahead. We're appreciate of their interest because they do represent Tennessee, and ultimately us.

A couple of things that we have added in our process is, as we've looked at the technical challenges of the landfill, is to look at how we can remediate, and a couple of observations that we've added on to the proposed plan. We think the landfill site testing needs to be looked at, or selection, and provide further data collection efforts. I think there's particular concerns with the – with the shallowness of the water table and what those effects might be. And those characteristics are important. You've heard from some of the other spears on characterization of the waste and getting that out front. We would – we would certainly concur with that. But as we look at the – at the water streams that may be in the hill, we want to look at that. I've looked at a libar [phonetic] photograph, and it is very, you know, very informative as to where we go.

We finally go down to the aspect of the mercury waste. And mercury is a scary thing. We don't really know how it is handled. It doesn't necessarily go into a magic box and then it comes out all right. I think more information on what that process is when you have residual waste in a building, how that does that – how does that affect us? Tearing down buildings affects the city of Oak Ridge. When we look at an incident that occurred on K-25 where technetium ended up in the city sewer system, and we're still hauling that waste away 4 years later. I think those kinds of things need to be looked at. What happens if we do have a release? And if it's going downstream to Poplar Creek, we face the EPA. Not the DOE, we face the EPA. And if that gets into our wastewater plant, then I have the \$10,000 a day fines.

Just, and this is a serious matter, because as of today we received a filing by Tennessee River Keepers out of Alabama, and they have sued the City for stormwater overflows and sewer discharged that have

occurred in the past based on public records. So we need to look at what those impacts are on the community. [Comment cut short due to time constraint; continued as follows.]

Continuation of Comment from Mark Watson: Yes. Thank you. Let me just kind of finish out a couple of things. As we continue to go through this process, I want to encourage that the communications people work very closely in monitoring what's said or how it's said. We've all heard about the Oak Ridge residents glowing in the dark and those types of things. And, you know, I just did a quick internet search. Everything that we put down is in the paper these days. And when we label a low-level waste landfill and it comes out Oak Ridge nuke dump, it becomes really hard for me to attract new industry and reindustrialization of ETTP without being able to look at those and how our message is conveyed out to neighboring communities.

And I'll share a story with you, too, a short one, that we had the possibility for our neighboring cities to the south having a large brewery located in that city. And it boiled down to two cities, one in North Carolina and down south in the Alcoa/Maryville area. That prospect – the prospect discussed the situation and tried to make a final decision, and discussed that the spouse had said, "Have you looked up north? Oak Ridge is to the north. We should go to the other site." And that's 600 jobs and hundreds of millions of dollars that were lost in the East Tennessee region. So what we say here, what it's couched at really becomes important for economic development. We don't have to be completely nuclear oriented with what we building in our economy, and I think that's important to keep in mind. So as we move forward in what's listed and commented on, I think we've got to be careful with that.

Finally, what would the City like to receive out of this? I am concerned about – I am concerned about the City's wastewater system. And when we disturb these buildings and if shifts and then there's an 8-inch. Rainfall that goes along with that, we need to be careful as to what impact may be upon the City's system. We have to be compliant with the Clean Water Act, and we've invested millions of dollars. We're looking at a \$44 million water plant that's coming along with that. But I think that we would like the State of Tennessee and the EPA and DOE to give us some protections for anything that may be released in any final order or final agreement that comes along.

We presently receive compensation in the form of a PILT payment for DOE lands within here. If we create a low-level waste landfill that's going to be here permanently, let's put it on at a proper value for a landfill and add that into the community base as far as the City is concerned.

A couple more comments that are in here. I'll just give that to the lady over here. And we appreciate being here tonight and we'll have some further written comments. And if there are any questions on what we've submitted, please give us a call.

Part 3 (written comments, attached to City of Oak Ridge Resolution submitted December 11, 2018): We are here tonight in a public hearing format to comment on DOE's Oak Ridge office Environmental Management (OREM) proposed plan to construct a ***second*** low-level nuclear and hazardous waste landfill in Oak Ridge for the disposal of up to 2.2 million cubic yards of building debris and waste associated with DOE's remediation. As we have repeatedly heard, contractors are running out of available space at the current landfill, known as the Environmental Management Waste Management facility (EMWMF). Huge national budgets and private sector contracts are at stake to get remediation done quicker, better and faster. Disposal pathways need to be established for the large volumes of contaminated building and demolition waste and soils that will result.

Cold War-era research and processing buildings at Y-12 and Oak Ridge National Laboratory targeted for demolition are located on the DOE's Oak Ridge Reservation, inside the Oak Ridge city limits. ***We are now faced with understanding a 200-year decision being made by others for our Oak Ridge Community.***

Oak Ridge has been a strong supporter of the Federal Government's remediation efforts to reduce risk from legacy environmental hazards for many years. The legacy waste was the result of DOE programs and missions that advanced national security and cutting edge research, and Oak Ridge trusted the decision makers because most of them lived here and were part of the well-being of the City. Today the landfill decision will be made for us by the U.S. Environmental Protection Agency, the U.S. Department of Energy, and the State of Tennessee. ***Oak Ridge is not at the table to shape the destiny of our City.***

The City of Oak Ridge first learned about the need for another landfill in mid-2014, and has sought to provide perspectives to help solve this challenging problem by engaging in discussions with DOE, EPA, TDEC, private contractors, elected representatives, along with other local officials from the region who formed ***the Oak Ridge Reservation Communities Alliance (ORRCA)***. ORRCA has reviewed technical information and studies prepared by DOE on the first preferred landfill site, located alongside EMWMF. We have examined EPA and TDEC comments on these documents. The Oak Ridge City Council transmitted questions and comments about potential community impacts, due to the proximity of the landfill. The City held public meetings on the results of a Community Impact Assessment it commissioned to systematically examine potential costs and benefits associated with a second landfill.

This Community Impact Assessment was in line with the requirements of the National Environmental Policy Act, which requires federal agencies to prepare a detailed ***environmental and socioeconomic analysis*** of their proposed projects. However, the DOE is using a Federal Superfund, modified "CERCLA" process, which by its design discounts community impact, cost, and acceptance. While the CERCLA process requires decision makers to consider "Community Acceptance" as one of the nine decision making criteria, DOE's Proposed Plan but [sic] makes no reference to the Community Acceptance criterion.

For a variety of reasons, DOE's first preferred site was deemed unsuitable, so the agency considered additional sites in Bear Creek Valley that led to selection of the new preferred site as described in the proposed plan. DOE issued "Technical Memorandum #1" this past summer, which describes the results of testing of environmental media at the 70-acre "site 7c" that is located in the Central Bear Creek Valley. The Technical Memorandum is the basis for DOE's issuance of the Proposed Plan for the site.

The new preferred site also presents significant technical challenges, with DOE and the State within the past year not being able to reach agreement on issuing a final remedial investigation/feasibility study for the proposed site.

Many of the issues raised by the State of Tennessee in the proposed plan, and which were summarized in a handout at their recent public meeting, have been similarly raised by EQAB, the public, and by the City in its reviews of the Technical Memorandum and proposed plan. As City Manager, I transmitted a number of questions and comments to the local DOE EM office in early July, but have not received responses to-date [sic].

Among the key issues identified in the City's review of the Proposed Plan:

- **Site Testing is incomplete to make a Landfill Site Selection.** On Page 6 of the Proposed Plan DOE indicates that the Bear Creek Valley is the most appropriate location for construction on an on-site waste disposal facility. However, DOE also indicates that further data collection efforts will be undertaken at site 7c to further characterize the site during wet and dry seasons and that "the conceptual design of the EMDF.....may need to be revised to accommodate the new information on the site hydrology and to satisfy the threshold CERCLA criteria." ***A site should not be characterized as most appropriate if pertinent data has not been collected and a determination has already been made that a design change is needed.***

- **From a Community Perspective, the requested regulatory waivers are not well understood or justified.** On Page 14 of the Proposed Plan, DOE indicates its intention to request a waiver of the Toxic Substances Control Act (TSCA) landfill siting requirements with respect to separation of the landfill liner from the historical high water table (i.e., groundwater). TSCA requires that there be no hydraulic connection between the site and standing or flowing surface water and the bottom of the landfill liner system or, natural in-place soil barrier of a chemical waste landfill be at least 50 feet above the historical high water table. Construction of a disposal facility at the proposed site will not meet this requirement. *A TSCA waiver from this requirement will be required under that statute for all of the onsite alternatives.*
- **In addition, the Department has indicated that it will seek an exemption under the State of Tennessee's Radioactive Waste Disposal Rule.** TDE requires that the hydrogeological unit used for disposal shall not discharge groundwater to the surface within the disposal site. At each alternative location in Bear Creek Valley, groundwater discharges to the surface within the proposed disposal site and will not meet this requirement. *The placement of low-level nuclear and hazardous wastes in an environmental setting where the groundwater is discharging to the ground surface, where wetlands are proximate and where surface water streams have documented flow rates in excess of 700 gallons per minute represent significant concerns.*
- **The Waste Acceptance Criteria need to be finalized BEFORE a Record of Decision is signed. DOE needs to provide more details about what kind, and how much waste it intends to put in the landfill.** Because some of the waste will remain dangerous for many years, it is critical for the community and the public to understand possible impacts to the public and the environment. DOE's approach of determining the Waste Acceptance Criteria *following* the issuance of the Proposed Plan denies the public the opportunity to understand and to offer comment on the waste that would be permitted to be disposed in the EMDF. *DOE should be required to provide in the Proposed Plan a process for characterizing waste prior to landfill disposal. Specifically, DOE should describe the extent of sampling and testing that would be implemented to verify that waste materials are acceptable for disposal in the EMDF.*
- **The Proposed Plan fails to adequately detail DOE's plan for remediation and disposal of Mercury wastes.** The City of Oak Ridge has long advocated for DOE address [sic] mercury removal in Oak Ridge to allow for the removal of Fish Advisories in **East Fork Poplar Creek**. There are DOE approved disposal facilities in the Western U.S. and licensed private sector facilities that accept mercury contaminated waste. About two years ago, TDEC added new signage to **Bear Creek, (which is near the proposed landfill site)**, stating that no fish should be eaten there because of Mercury and PCB levels.

DOE must also comply congressional [sic] mandates included in the Mercury Export Ban legislation of 2008, which specifically prohibits the Department of Energy from long-term management and storage of elemental mercury at *"the Y-12 National Security Complex or any other portion or facility of the Oak Ridge Reservation."* While DOE asserts that the remediation of mercury residuals remaining at the Y-12 site is a priority for the Oak Ridge cleanup program, the treatment and disposal of Mercury contaminated wastes are not described in the Proposed Plan.

- **DOE did not incorporate cost savings from guaranteed waste volume shipments to off-site landfills.** The cost differential for the off-site disposal option does not include an assessment of cost savings from guaranteeing volumes of material shipped to an off-site disposal landfill. It is important to consider DOE's excellent transportation record, with thousands of shipments of many types of waste annually without incident.

- **DOE has not provided sufficient information on support systems that will be needed for the EMDF operation (wastewater management ponds, treatment systems, utilities, roads).** The DOE issued Proposed Plan (page 13) and supporting documents are incomplete with respect to describing the wastewater treatment systems that will be needed to operate the EMDF. DOE indicates that a wastewater treatment system will be constructed, however, landfill wastewater from EMDF would be staged and sampled. If sampling results indicate that water quality complies with the discharge limits agreed to by EPA, DOE, and TDEC, then the water would be directly discharged without treatment to Bear Creek. If the sampling results indicate the water quality is unacceptable for discharge, then the staged water would be treated prior to release. As part of the remedy, a treatment system would be provided adjacent to the EMDF facility. *The City is particularly concerned with runoff into the Bear Creek from leachate that is contaminated with Mercury. DOE should have produced these documents related to wastewater treatment systems for the EMDF for public inspection prior to issuance of the Proposed Plan.*
- **DOE fails to adequately integrate NEPA analysis into the CERCLA process. DOE has limited its assessment of National Environmental Policy Act (NEPA) from the proposed site 7c EMDF to impacts on land use.** This approach fails to integrate NEPA requirements within the CERCLA process per DOE's own requirements (DOE Order 5400.4, issued October 6, 1989.) [sic] The Proposed Plan does not include a thorough assessment of the potential socio-economic impacts on the surrounding communities from the proposed EMDF. The few paragraphs in the "NEPA Values" section are incomplete, and do not address any of the questions and comments submitted by the City in its report and transmitted to DOE in my July letter. Nor is the City's Community Impact Assessment referenced or acknowledged. *This lack of a thorough NEPA assessment underscores the need to re-examine DOE's policy of using NEPA-like criteria in CERCLA decision making. In this case, the policy is not covering the necessary aspects of NEPA relevant to facility siting.*
- **Finally, DOE has not included in the Proposed Plan a Contingency Plan in the event Site 7c is not determined to be an acceptable remedial option for disposal of ORR wastes.** DOE has indicated in the Proposed Plan that the operating EMWMF is approximately 75% filled. DOE should update the community on the estimated date when the EMWMF will be 100% filled and its contingent plan to dispose of wastes in the event of a non-decision on the site 7c EMDF.

As City Manager, I am deeply concerned about the negative public perceptions about Oak Ridge that I have observed as an 8-year member of this community. Such perceptions have adversely impacted growth and development, not only in our community, but in the East Tennessee region. Most everyone has joked about Oak Ridgers' reputation as "glowing in the dark," but have experienced how this image and environmental misunderstanding puts us at a competitive disadvantage with lost opportunities for new industries, industrial expansions, and population growth. It is not unusual for industrial prospects to ask about Internet stories from local media outlets about Oak Ridge's nuclear legacy. Although this nuclear legacy has enhanced the quality of our workforce it's hard to dispute a headline that labels a "low level waste landfill" as the "Oak Ridge Nuke Dump" (Knoxville News Sentinel 7/27/2016). Private companies are looking for reasons to eliminate your site and sensationalized media like this makes recruiting industry very difficult at times. In fact, a neighboring community advised they were one of two finalists for a very large brewery project worth 600 jobs and millions of dollars of investment in the Knoxville regions. **The prospect selected the city in North Carolina, and stated one reason was this spouse was afraid of proximity to Oak Ridge!**

In closing, three important recommendations that I believe are necessary to promote the long-term viability of the City of Oak Ridge. First, the remaining space in the existing landfill should be *closely monitored and utilized sparingly*. DOE should make every effort to exercise existing contracts with out-of-state vendors to dispose of waste that is currently projected to go into EMWMF. This new approach, while

likely requiring a contract amendment with the cleanup contractor, will take some pressure off all the parties, provide a reasonable timeframe to fully assess potential impacts, and allow sufficient time to study and develop a more comprehensive of alternatives [sic] to constructing a new landfill on green space at a location with a very high water table. The current timeframe to site a new landfill is unreasonable. If scheduled properly, the workforce we all value and respect will not stop working, their assignments may be modified, which happens on a routine basis.

Second, DOE should supplement the proposed plan to incorporate a much more comprehensive NEPA analysis of the potential impact of the EMDF on the greater Oak Ridge community in order to fulfill the requirement of DOE Order 5400.4. The City of Oak Ridge offered extensive comments on this issue to the parties to the FFA in its comment letter submittal to DOE on the report entitled “Remedial Investigation/Feasibility Study (RI/FS) for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Oak Ridge Reservation (ORR) Waste Disposal Oak Ridge, Tennessee – DOE/OR/O1-2535&D3 [sic].”

Third, if the proposed plan is ultimately accepted by the EPA and the State of Tennessee, there are a number of community mitigation measures that MUST be incorporated into the Record of Decision:

- **A 25-year waiver for the City of Oak Ridge from EPA and the State of Tennessee from compliance with the Clean Water Act.** The City has just completed a \$25 million investment to comply with an EPA Administrative Order on Inflow and Infiltration into our wastewater system. We also encountered a release of Technetium into the City’s sewer system four years ago due to remediation. We are very concerned about the uncontrolled release of elevated levels of mercury, uranium, and other “classified” contaminants entering our system that during the lifetime of the proposed landfill which could result in Clean Water Act violations and significant fines on the Oak Ridge community.
- **A requirement that DOE provide payment in lieu of taxes on the proposed landfill and associated facilities that are equal to the taxation of a comparable industrial landfill.** The Oak Ridge property is valued at the low agricultural value for PILT purposes. Communities such as Andrews, Texas are receiving over \$8 million annually in offset fees. Such a requirement would help offset the economic opportunity costs associated with changing the future land use designation of the location and surrounding area, from the current recreational and future unrestricted use designation, to DOE-industrial use designation. DOE’s intent to seek a waiver to land-use designations may be considered by some in the local community as a breach of faith with the citizens who devoted many hours of their time to working with DOE to hammer out a mutually acceptable (and technically practicable) set of end-use designations for DOE’s Oak Ridge lands, with the expectation that DOE would achieve sufficient cleanup to support the designated uses.
- **A requirement that annual financial assurance payments be continued to be paid by the federal government for the lifetime operation of the proposed landfill.**
- **An amendment to the BORCE conservation easement that will allow utility corridor easements for the development of industrial parks and facilities for the community.** This easement was negotiated without any city involvement, and thus places the city at a competitive disadvantage by not allowing normal growth “outside the gates.”

Comment 57: Comment from Alfreda Cook

Part 1 (from November 7, 2018 public meeting): My name is Alfreda Cook and I am a resident of Oak Ridge, also a retiree of one of the DOE facilities here. So I’ve been around here for quite some time.

What I had hoped to see at this presentation was more of, this is what we would like to do. Okay. And these are the positives for the reasons that we have selected this approach, and these are the negatives that we have looked at that caused us to go in this particular direction.

This is a great overview, but I spent a couple of days actually going through the proposed plan and looking at some of the other documentation that supported it, and it would really have been great to have seen and heard the negatives that have been looked at, and such that those would be juxtaposed against the positives.

We, as citizens, tend to not know the technical reasons for things that occur, and we depend on our regulatory agencies to tell us. I need to be convinced that this is the right approach. And what I have seen and heard thus far, I'm really not convinced. I'm not for, and I'm not against, the EMDF. It's just I don't have anything that is pushing me in that direction.

Now, one thing that is what I think is the elephant in the room has to do with the groundwater. And if you look at the drawings for the proposed placement of the EMDF, you're looking at tributaries that are all around that particular site. The groundwater table is very shallow. What happens if there is a breach in the liner at the bottom of the cell? Okay. Is there a plan for – an emergency action plan for collecting that discharge that's at the bottom? Suppose that there is a tremor that causes the karst and the limestone to have a problem around this facility and we end up with a sinkhole, what is the emergency plan? Things like that I'm not hearing, and I really do think as citizens that that's what we need to know is what is the emergency remediation if something does not go according to plan. Thank you.

DOE Representative: Could I offer a quick response to that? Basically we do have to have a plan. As part of the design facility, we'll have to design a monitoring plan that would be put into place to detect any type of problems like that, if they developed, and then we have to have a corrective action plan. So if there were to be a release from the facility in the future, we would have a regulatory obligation to detect it and respond to it. The engineering details of that would be something we would have to work out in a collaboration with EPA and TDEC, but we're not allowed to release and not respond to it.

Ms. Cook: That was Question A. Question B: Do we have any remaining unlined burial grounds that in the future may need remediation? The reason that I'm asking that question is would there be capacity in this EMDF for unplanned remediation activities? Now, I know that when we planned for the EMWMF it was for a particular total capacity, looking at cleanup of ETTP and some cleanup at ORNL and Y12. All right. Now we're looking at major cleanup at ORNL and Y-12. Is there any excess capacity in this new facility for emergency cleanup of other area s?

DOE Representative: There is. We basically plan a volume contingency. When I talk about 2.2 million cubic yards, that's all the waste we know we have, plus a contingency factor. There are unlined disposal trenches on the reservation that have not had final decisions made on them yet. There are some in Bear Creek Valley. So, yes, there is space. Should be decide to dig those up and relocate them to the landfill, there would be space for some.

Part 2: As a resident of the City of Oak Ridge, I am responding to DOE's request for comment on the Proposed Plan to construct a second hazardous waste landfill -- the Environmental Management Disposal Facility (EMDF) – on the Oak Ridge Reservation (ORR).

A simplistic concept of DOE's role in Oak Ridge is that of promoting scientific research, managing radioactive materials, and cleanup of radioactive and chemically hazardous contaminants left over from the Cold War era. An equally simplistic concept of TDEC and EPA roles is that of protecting human health

and the environment. I am mentioning these roles to highlight that decisions made by these agencies directly affect the livelihood of residents in Oak Ridge and surrounding communities.

In the early 2000's, DOE promoted the existing EMWMF as the single landfill needed for disposal of chemically and radiologically hazardous waste generated from cleanup of the ORR. The cleanup plan was limited to the ETTP site and small areas in and around ORNL and Y-12 sites. The public accepted DOE's assessment of onsite vs. offsite disposal risks and supported placement of a single landfill on the ORR – which is within the city limits of Oak Ridge and proximate to two heavily populated residential areas.

DOE expanded its cleanup scope around 2004 to include demolition of many outdated and highly contaminated facilities at Y-12 and ORNL. This expanded scope, along with the recognized inefficient use of EMWMF, has created a shortage in onsite disposal capacity. Now, DOE is proposing a second hazardous waste landfill on the ORR.

The Proposed Plan discusses “what” DOE plans to develop; however, it omits parameters that limit “how” the plan will be implemented. Within the document, TDEC – the community's protector of human health and the environment – identifies multiple concerns regarding the proposed location of EMDF and even questions whether onsite disposal should be the preferred alternative. I believe those concerns are valid and warrant resolution prior to going any further in the evaluation process. I offer the following observations:

- Insufficient site characterization prior to release of the Proposed Plan gives the appearance of a rush to gain approval of a remedy that favors DOE's goals over the welfare of the community. Long-term success should be the goal, not short-term convenience.
- TDEC, EPA, and DOE could not reach consensus on the remedial investigation / feasibility study which forms the basis for the Proposed Plan. The study's data are available in the Administrative Record; however, not presented in the Proposed Plan for public review.
- The preferred location for EMDF (CBCV Site 7c) is 0.8 miles and 1.1 miles respectively from two (2) heavily populated residential areas in Oak Ridge; is located over a shallow groundwater table; is surrounded by surface tributaries; and receives an average annual rainfall of over 50 inches. The site has not been sufficiently characterized to ensure its suitability for an engineered hazardous waste landfill. The Proposed Plan should include final characterization data for public review.
- The Proposed Plan notes the intent to request waiver of applicable CERCLA and TSCA regulations that restrict how and where hazardous waste landfills are constructed. The preferred location for EMDF – in its current state – does not meet regulatory requirements; therefore, waivers should not be requested.
- The Proposed Plan does not mention if waste minimization or waste reduction techniques will be implemented, monitored, or reported to meet any desired set of goals. Reducing the volume of waste should be a primary goal.
- Demolition of Y-12 facilities will generate a large volume of mercury-contaminated waste. The Proposed Plan does not present mercury treatment and disposal technologies that allow the waste to meet land disposal restrictions.
- The Proposed Plan does not present a definite plan to build wastewater treatment and interim storage facilities at EMDF. Neither does the plan discuss anticipated volumes, contaminants, discharge limits, storage capacity needs, or cost estimates. Definitive, long-term wastewater management plans should be included for public review.

- Waste characterization and waste acceptance criteria for EMDF are not presented in the Proposed Plan. This information should be available for public review and comment well in advance of any construction planning for EMDF.
- History supports that additional chemically and radiologically contaminated areas – currently not in EM’s lifecycle baseline – will be identified for cleanup and waste disposal in the future. If large-volume waste streams (i.e., mercury contaminated debris) are not shipped offsite for disposal, then plans to build a 3rd hazardous waste landfill within Oak Ridge must be anticipated in the future.
- Property values in Oak Ridge already underperform those in adjacent communities, and new residents avoid locating here due to the City’s stigma of being “hot” with radioactivity. The Proposed Plan should address these concerns with an aggressive approach for truly removing waste from the ORR.

This Proposed Plan is the only readily accessible document by which the public can evaluate DOE’s preferred alternative of constructing a second hazardous waste landfill within the city limits of Oak Ridge. The public is being asked to evaluate the plan without access to a significant amount of supporting information that is omitted. Based on the information currently provided, I cannot support this plan.

Please revise the document to include more detailed information and reissue for a 2nd Public Comment Period.

Comment 31: Comment from Ellen Smith (from November 7, 2018 public meeting)

Part 1 (from November 7, 2018 public meeting): I’m Ellen Smith. I’m a resident of Oak Ridge and a member of the Oak Ridge City Council and a professional environmental scientist now retired from Oak Ridge National Laboratory. I have academic background in hydrogeology and professional experience in landfill siting and design and other aspects of radioactive hazardous waste management.

It seems to me that this particular proposed landfill represents a breach of some of the trust, mainly the Department of Energy in the Oak Ridge community. We in Oak Ridge are well aware that the amazing and important work that was done here over the years left a complex legacy of waste and contamination that needs to be managed. In spite of the difficulties of managing waste in this environment, we do understand that much of the legacy material here will remain in the ground where it is forever. Needs to. And the general government will need to be permanently responsible for that material. We also understood that the federal government accepted legal and moral responsibility for environmental remediation here, but cleaning up the legacy as much as possible and preventing the future spread of contamination.

Back in the 1990s, community members who had studied the situation here agreed that a sensible way to manage a lot of the lower hazardous waste material used during cleanup would be to consolidate it and contain it within an area of the Oak Ridge Reservation that was already permanently dedicated to waste management due to its past history. That agreement, as we’ve heard tonight, led to creation of the EMWMF, which was – which people expected was going to serve all of the needs of future cleanup.

Now, 20 years later, basically, language in the DOE proposed plan seems to try to imply that the new proposed landfill is to dissolve that earlier agreement, but as I see it, it isn’t. First, this landfill is outside the bounds of areas that were already dedicated to waste management, to the clean area, we heard tonight. Establishing this landfill will increase the area dedicated to waste management by not only the 70 acres the landfill will occupy, but a much larger area of unknown size that surrounds it.

And as has been mentioned, and something that I emphasize, the landfill is being proposed not as a landfill, but as a Superfund cleanup action. As a cleanup action, it’s not required to comply with the normal environmental regulations that would apply if a new landfill was being sited for any other purpose. The

landfill, as currently proposed, is one that could not be built if it had to comply with normal environmental laws and regulations. It wouldn't be suitable as a nonhazardous use of the landfill without various waivers that are being requested to waive regulations related to groundwater and modify water quality criteria, among other things. And it wouldn't – a normal landfill wouldn't be allowed to operate for several decades, after it was initially approved, without continuing regulatory oversight, which this landfill would not have. That's a procedural requirement that a Superfund action is not required to comply with.

DOE probably wouldn't be seeking a new landfill this soon, if space in the existing one had been use responsibly. As others have suggested, waste was not characterized adequately before disposal, so a good fraction of what was disposed in the EMWMF probably was clean, and possibly could have been managed at other sites, preserving some of the waste for the higher hazardous material that the EMWMF was designed for. The fact that DOE won't tell us yet what the waste acceptance criteria for this landfill would be – that is, what would go into it – is consideration that limits potential public confidence in DOE's decision.

Another concern that I think is a breach of trust is that this landfill would introduce contaminants into the watershed at Bear Creek that aren't currently part of the contaminant burden in that particular watershed. Specifically, there would be a significant amount of mercury. We don't know if that mercury would be treated before it would go into the landfill, and a number of radionuclide, numerous radionuclide, that exist at ORNL, but are not found at the Y-12 facility and, thus, would require a significant new level of monitoring and management, if they're introduced at the Bear Creek watershed.

There are also some serious technical issues in this proposal. The diversion structures, the gravel drains, the pipes, the liners, the caps that are all part of the sophisticated design to manage water in and around this proposed landfill unfortunately can pretty well be expected to fail at some time over the long term. Collectively, their life expectancy is probably decades, not centuries, and certainly not perpetuity. This landfill isn't something that DOE can walk away from after it's depleted. There's a long-term requirement for stewardship and continual maintenance.

The waste sites that we're discussing in the western states, those three sites, I include the one in West Texas on that list – have the capacity to accept this kind of material, are permitted, licensed, and so forth, to accept it, are far more physically suitable to management of this kind of waste, they're in places where nobody lives, and there's such very, very little rain, and it happens that under federal law those sites are going to become the legal responsibility of the Department of Energy after they're filled up. So DOE is responsible for them already, leading to the question of why would we want to create a new waste site, if you're already responsible for those others, which are going to be easier to management in the long term than this site here in East Tennessee. [Comment stopped based on time constraint; continued as shown below.]

Continuation of Comment from Ellen Smith: Yes, briefly, I wanted to conclude that Oak Ridge was promised a cleanup back when the Environmental Management program started up. We weren't promised a new waste site on clean land. That what we're looking at right now. That's not good for the – that's not good for the environment. It's not good for the community, as Mr. Watson has pointed out. We have significant negatives that result from the public's perception that this community is welcoming a new waste site when, in fact, many have very little say in this particular decision. We have the opportunity to talk to you tonight, but we don't have any veto power over what you're proposing.

I wish that we could get this material handled in – if it's going to be handled here, it should be handled in a previously contaminated area. We shouldn't be trashing clean property and the city's – the community's needs for assistance in dealing with the burdens of dealing with the opportune costs, in particular, that we receive as a DOE host community need to be given better consideration.

Additional comment during November 7, 2018 public meeting: I have a question and a comment for people here. I'll start with a comment for folks here. Just a point of information. The location of this facility is not adjacent to the Tuskegee Drive area that was mentioned. It's actually across the ridge from the Country Club Estate subdivision of Oak Ridge. And in connection with that, I'm aware that the Country Club Estate's situation was mentioned in discussions with the DOE Site-specific Advisory Board, and SSAB members recommended that the subdivision have some sort of community outreach as a part of the process of reviewing the proposed plan. So I'm wondering if that's happened to date or if that still needs to be scheduled?

DOE Representative: I'm unaware of a specific outreach we've made to Country Club Estates yet, but we certainly can do that, making sure they're aware of the proposal and if they have any special insight or thoughts on how we should proceed.

Part 2: Thank you for the opportunity to comment on the subject document. My comments are provided from the perspectives of a resident of Oak Ridge, a member of the City Council, and a professional environmental scientist (now retired from Oak Ridge National Laboratory). I have an academic background in geology and hydrology, and I have professional experience with landfill siting and design (both at ORNL and in prior employment), as well other aspects of radioactive and hazardous waste management.

The Department of Energy and the Oak Ridge community have long enjoyed a special relationship that I see as extremely valuable to both parties. Unfortunately, it seems to me that the proposed EMDF represents a breach of the long-standing trust between the Department of Energy and the Oak Ridge community.

Oak Ridge is well aware that the amazing and important work that has been done here over the decades has left a complex legacy of waste and contamination needing to be managed. The Oak Ridge environment is a problematic setting for management of highly hazardous waste. This is not a place anyone would have deliberately chosen to locate a landfill for radioactive or hazardous waste. This environment has high rainfall; an exceptionally complex combination of geologic and hydrology that that is still poorly understood; and close proximity to water supplies, human populations, and rich ecological systems. We have waste here because critically important work was performed here for the benefit of the nation, not because it's a good place to put waste. The challenges of the local environment notwithstanding, we do understand that there is much legacy material already buried here that will need to remain in the ground where it is, where the federal government is responsible for it in perpetuity. We also understood that the federal government accepted legal and moral responsibility for environmental remediation – for cleaning up the legacy to the extent possible and for preventing future spread of contamination. As described below, this proposal violates that understanding.

Misapplication of CERCLA statute. The proposed siting, construction, and operation of the EMDF disposal cell as a CERCLA remedial action is a misapplication of the CERCLA statute. The CERCLA statute was designed to help get waste sites cleaned up quickly, not to create new waste site [sic] on clean land and deposit waste in it over a 20-year period. It's clearly advantageous to DOE to treat the EMDF as a Superfund cleanup action, not a landfill, because this allows DOE to bypass the normal procedural requirements of environmental laws and regulations for landfills (such as the National Environmental Policy Act and the requirements for licensing and inspections by regulatory agencies that could shut the project down if it were in violation), it shields DOE from legal challenges to the decision to build it, and it allows DOE to request and possibly obtain waivers from the substantive environmental requirements that would normally apply. It appears to me that the EMDF could not be built if it had to comply with normal environmental laws and regulations. The proposed site would not even be suitable for a nonhazardous municipal landfill without the waivers that are being requested and that would be justified by the fiction

that this landfill is a cleanup action. Additionally, a normal landfill would not be allowed to operate for decades without continuing regulatory oversight (by regulatory agencies with real authority – for example to order an operator to suspend operations), but that’s what can happen with the proposed EMDF.

DOE has cited other DOE sites as precedents for this action, referring (apparently) to the Fernald site in Ohio and the Weldon Spring site in Missouri. At those sites, DOE demolished a production complex that had not operated for many years and consolidated all of the waste in a single disposal cell on the property. Those were one-time actions that could be addressed in a single decision. In contrast, here we are considering the continuing operation of a landfill over a period of decades, with construction of multiple disposal cells that would receive waste from many specific demolition and cleanup projects. That kind of activity requires many decisions throughout the landfill’s operating life and normally would be subject to ongoing regulatory oversight over the years; it’s not a single action that can be addressed in a single decision up-front.

Land use implications of Central Bear Creek Valley (CBCV) site. Back in the 1990s, community members who participated in the End Use Working Group for the Oak Ridge Reservation worked in partnership with DOE, studied the situation, and agreed that a sensible way to manage some of the lower-hazard waste material produced during cleanup was to consolidate and contain it within an area of the Oak Ridge Reservation that is already permanently dedicated to waste containment due to its past history. That agreement led to creation of the existing EMWMF landfill, which people expected would serve all of the needs of future cleanup. Language in the Proposed Plan seems to imply that this new proposed landfill is somehow a result of that agreement, but it isn’t. The Central Bear Creek Valley site that DOE currently prefers for the EMDF (also the West Bear Creek Valley site identified as an alternative candidate) is outside the bounds of areas that are already dedicated to waste management. Its establishment would increase the inventory of contaminated land on the DOE Oak Ridge Reservation by the 70 acres of the landfill plus associated surrounding areas required as environmental or security buffers, and would permanently prevent other land uses on those areas.

Past failure to conserve landfill space diminishes our trust. DOE would not be seeking a new landfill, at least not this soon, if the space in the EMWMF had been used responsibly. If waste had been characterized before disposal, a good fraction of what was placed in the EMWMF would have been found to be clean, and would not have needed to go there.

Refusal to give critically important information to the community and regulators. There are several components to this issue:

1. **Waste Acceptance Criteria (WAC).** The public should not be asked to provide input on its acceptance of this major undertaking without explicit information on the waste types that would be placed in the facility. DOE has refused to disclose the proposed WAC for the EMDF, nor to give the state and EPA regulators the WAC data they need to evaluate the long-term risk of the disposal facility, until a record of decision (ROD) is ready to be issued. This does not support public confidence and it deprives the public and regulators of the ability to provide truly informed opinions during the public comment process on the proposed plan. This community is too sophisticated to accept that assurances like “no high-level waste” and “only lightly contaminated material” are protective. We deserve details – to include technical information on how any mercury waste would be immobilized prior to disposal.
2. **Insufficient hydrologic investigations at CBCV.** There is less than one year’s monitoring data for the CBCV site that DOE prefers. Even one year’s data is not normally sufficient for understanding the hydrologic conditions at a site. No decision on site suitability should be made with the minimal data

available now, and the public's one opportunity to weigh in on the decision should come after data are available, not before.

3. **Lack of details for cost comparisons between onsite and offsite disposal alternatives.** It appears that DOE's preference for onsite vs. offsite disposal is based almost entirely on cost (it's cheaper to ask Oak Ridge and Tennessee to accept the long-term burden of a new waste site in an unsuitable area than it is to send waste to a more suitable location), but the details of DOE's cost comparisons have not been made available for scrutiny – and there are local people with relevant expertise who think the cost differential has been greatly exaggerated. The community needs to be able to evaluate the cost analysis before any decision is made.

Site-related technical concerns. There are multiple serious technical issues with the sites and the proposal that make this landfill a long-term liability.

1. **Site unsuitability.** Available data indicate that all of DOE's candidate sites for onsite disposal present major hydrologic challenges, in the form of surface streams (particularly at the East Bear Creek Valley site) and very near-surface groundwater in a hydrogeologically complex setting characterized by springs, seeps, and upwelling flow (I recall seeing that one of the monitoring wells installed at ECBV was a flowing well). DOE contends that the technical issues of the sites all can be overcome by engineering. However, experience at the existing EMWMF has indicated that it's difficult to anticipate all hydrologic issues and there can be serious problems that aren't anticipated. Even if it were possible to design diversion structures, subsurface drains and cutoff walls, underdrains, etc., guaranteed to fully accommodate all of the water that might try to enter the proposed facility, the diversion structures, gravel drains, pipes, liners, and caps, installed to manage water in and around this proposed landfill can be expected to fail in the long term. Their collective life expectancy is decades, not centuries, and certainly not perpetuity. This landfill is not something that DOE can walk away from after it's filled. It will be long-term burden [sic] on the federal government and the community.
2. **Mercury.** It's expected that this landfill would receive mercury waste, and it's not apparent that this waste would be appropriately stabilized before disposal.
3. **Long-term consequences of introducing new contaminants into Bear Creek watershed.** Because this landfill would receive waste from ORNL and is expected to receive mercury waste from Y-12, it would introduce contaminants into the watershed of Bear Creek that aren't part of the contaminant burden in that watershed. Mercury at the Y-12 site is in the watershed of East Fork Poplar Creek, not Bear Creek, and history of work at the ORNL site in Bethel Valley has involved pretty much every radionuclide on the periodic table, most of which were never found at the Y-12 facility. Adding new contaminants into the Bear Creek watershed will add to the monitoring and stewardship burden facing DOE and the community into the long-term future.

Offsite Alternatives. Other better options exist in the form of the commercial disposal sites in western states (Utah, west Texas, and Nevada) that are licensed for these wastes, have capacity to accept them, and are in dry settings that are far more physically suitable for waste management. The usual guidance on siting disposal facilities for radioactive waste is to keep them far away from residential areas. That's not a luxury we have in East Tennessee (the CBCV and ECBV sites are both less than a mile from Oak Ridge residential neighborhoods across the ridge, and people downstream in Roane County get their drinking water from streams affected by runoff from waste sites on the Oak Ridge Reservation), but the three western sites are very remote from human populations. Additionally, DOE is required by law to assume financial and management responsibility for these western sites after they are shut down, so there's a benefit from using them for this DOE waste and avoiding the long-term costs of dealing with an additional newly created waste site here in Oak Ridge.

Preference for Offsite Alternative. If the three Bear Creek Valley sites are the best candidates that can be identified locally, offsite disposal (at one of the three approved sites in very arid locations in western states) is clearly a better alternative.

Response to DOE Objections to Offsite Alternative. I have listened to DOE's assertions that the main reasons for preferring onsite disposal are not cost, and I have responses to the assertions I've heard:

1. One argument I've heard is that the primary reason is not cost, but rather that onsite disposal is more protective of health and environment in the short term, thus meeting the CERCLA balancing criterion of short-term effectiveness. I don't happen to believe that this is a reason; rather, it's an excuse. Additionally, I don't think the argument is valid. DOE asserts that transport to a western site is not protective because people could die from ordinary traffic collisions during transport. This is based on the assumption that long-distance transport be done by truck, when it's acknowledged that it would be by rail, which entails a far lower potential for traffic collisions. Additionally, I submit that the very low number of potential traffic accidents predicted even for truck transport would not be a factor in ordinary decision-making about these two alternatives – the accident rate would be deemed negligible. It's likely that there are more highway deaths from traffic accidents due to people ordering basic necessities (like cat food and toilet paper) from Amazon, but I've yet to hear a suggestion that people should stop buying goods from Amazon due to the public safety threats resulting from traffic accidents involving the extra trucks needed to carry people's special shipments of these goods.
2. It's asserted that reliance on an offsite facility would make DOE vulnerable to possible decisions by other states and localities to suspend authorizations for shipments of Oak Ridge wastes to those facilities. I submit that the existence of three sites in three different parts of the west greatly reduces the "risk" associated with such decisions. Additionally, I note with chagrin that DOE places so much significance on the hypothetical future objections of some unidentified state or local government somewhere else in the nation, while proposing an action here in Oak Ridge over which the local government and citizens would have absolutely no authority, now or in the future.

Thank you for this opportunity to comment. I do hope that there will be additional opportunity for public comment before any decision is made to site the proposed EMDF here in Oak Ridge.

Comment 32: Comments from Unidentified Speaker (from November 7, 2018 public meeting)

I came to – I came here to a PR event – was that September 13th? Is that correct? Sorry. Oh. It was the one before that, that you hosted. You explained to me that, at that time, it would cost us \$800 million to ship all of this stuff out west, where you acknowledged it would be a much better place to store it, where it would much more stable. It's very arid out there, unlike here. And you said that – you know, you talked about all the CO₂ that would generate, all of those hundreds of thousands of truckloads and all the traffic fatalities that would entail, and I later asked you – you had a slide on that earlier, in the early part of your show, and I later asked you if it wouldn't make a lot more sense just to ship it by rail, and you said, "Oh, of course we'd ship it by train." But it didn't sound like you really had a plan figure out very well at that point. What was the plan?

DOE Representative: If we were to rely exclusively on outside disposal, the plan would involve a mixture of truck and rail traffic. For the long haul, from where in Oak Ridge to its western disposal sites, it would be a train arrangement.

Unidentified Speaker: Right.

DOE Representative: We would use trucks to get it to the train in Oak Ridge somewhere.

Unidentified Speaker: Right. But there wouldn't be many highway facilities,

DOE Representative: That would –

Unidentified Speaker: It's on a dedicated road within the reservation, right?

DOE Representative: Right. What we've done in the past is always use roads that we've built specifically for this propose on the reservation.

Unidentified Speaker: Yeah and that makes a lot of sense.

DOE Representative: And trains from there. You know, there are transportation risks associated with trains, and there's transportation risks associated with trucks. We do have a pretty successful record on our transportation, but there are statistical probabilities associated with any transportation mode.

Unidentified Speaker: I also asked you about the cost of shipping all that stuff out to places where it could be more safely stored long term. And you acknowledge that it would more expensive long term to keep it here, but you also said that the DOE has a yearly budget, and so you needed to do something that was cheaper short term. But that's sending an awfully big bill to us and our children and our grandchildren, I mean, forever, which is how long you said this would have to be maintained for. That's a very long time. And if it costs more to maintain it here than it would in place where they actually wanted it, then, you know, that you know, would end up costing us much, much more long term, would it not?

DOE Representative: The \$800 million figure is the difference in cost between managing it locally, the material that would be kept here versus being shipped out west. The \$800 million more out west. So it's not – it is more expensive to get it out west. There's no avoiding the cost of transporting it out there.

Unidentified Speaker: Even multiplying the cost of maintaining it here forever times infinity?

DOE Representative: Right. I'm not an economist, but you have to get into discount values and time value of money and all that stuff, but it is more expensive to take it out west because of the unavoidable cost associated with transportation. It's true that in either location you have to maintain it. And it's true, as somebody commented, that we're in the business of managing sewage out west and here. We will be doing both, but those costs that are unavoidable.

Unidentified Speaker: Okay. Thank you.

Comment 33: Comment from Unidentified Speaker (from November 7, 2018 public meeting)

I would just like to second what Brian said. Today, the day after election day, when many of us are exhausted by a long campaign season, including several of our public servants who are here today, probably several more who would be here if they weren't exhausted, it would make a great deal of sense to extend the comment period. I, for one, was completely involved in the campaigns until the early hours this morning. I didn't have time to put together any kind of rational comment, and I would appreciate having time to do that. Thank you.

Comment 34: Comment from Mike Siford (from November 7, 2018 public meeting)

My name is Mike Siford. I'm not – I'm just a resident of Oak Ridge. I'm not any big technical. I'm a computer guy. But my question is, is that you have this liner system, that you have this rock – the rock, soil and clay liner, and you have a geo deposit, and whatever else it is. I don't know. Has this been tested? I mean, have you set up a test on this for, you know, the extremes that it can withstand? Has anybody tested this theory? I mean, seems to me that you just put a bunch of ground stuff together and stuffing the waste in the middle of some stuff, and then you're just capping it off. It doesn't seem like anything has really been tested or anything has been looked at. I mean, like I said, I'm not – you know, some of these scientists here are, you know far above my knowledge, but it just looks like, you know, something that you would do at a racetrack whenever you're trying to get rid of all the oil and transmission fluid.

DOE Representative: So, yes there's a lot of testing that goes on. These engineering methods have been tested in a range of environments. And, actually, as the facility is built, if built, tests are done to assure the quality and performance of the different liners as they're put down. So there's a lot of testing that goes on in these types of facilities when they're built. We're not taking waste oil and liquids. This is purely dry material that would be allowed to be put into the facility. You've got a basic approach to doing this. It's something that's been done a lot. And, again, as the different systems are put in place, they're tested to make sure they perform as expected prior to continuing with the work.

Comment: 35: Comment from County Commission for Roane County, Tennessee

Resolution No. 10-18-23

A resolution supporting the U.S. Department of Energy construction and operation of a new, engineered onsite disposal facility known as the Environmental management Disposal Facility (EMDF) in Central Bear Creek Valley near Y-12

WHEREAS, the United States Department of Energy (DOE) has had a significant impact on the local cities, counties, and region by providing viable employment opportunities for multiple generations of families in East Tennessee, and provided an invaluable service to our great Nation during World War II and the Cold War; and

WHEREAS, two of the three DOE Oak Ridge facilities are located in Roane County and have contributed extensively to both the local economy and livability by improving the standard of living; and

WHEREAS, Y-12 and the Oak Ridge National Laboratory (ORNL) continue to be vital to our national security; and

WHEREAS, the historic cleanup of the East Tennessee Technology Park (ETTP) has enhanced Oak Ridge's safety and provided the community with land to attract private industry and expand the area tax base; and

WHEREAS, this unprecedented cleanup was made possible because of the current onsite disposal facility known as the Environmental Management Waste management Facility (EMWMF); and

WHEREAS, EMWMF has enabled DOE and the American taxpayer to avoid almost \$1 billion in additional disposal waste management costs so that additional efforts could be directed toward removing existing hazards and reducing environmental risk; and

WHEREAS, EMWMF is expected to reach capacity within the next five to ten years while additional disposal space will be necessary to efficiently and safely achieve cleanup as DOE shifts its mission to the removal of excess contaminated facilities at ORNL; and

WHEREAS, construction of a new onsite disposal facility known as the Environmental Management Disposal Facility (EMDF) in Central Bear Creek Valley near Y-12 will be critical in the near-term for the continuation of large-scale cleanup efforts planned across the Oak Ridge Reservation, including removal of 75-year old aging excess contaminated and deteriorating buildings at ORNL and Y-12; and

WHEREAS, EMDF will be situated in Roane County; and

WHEREAS, EMDF will be built to the highest engineering standards incorporating appropriate safeguards to protect the public and the environment; and

WHEREAS, DOE has a proven record of safety operating the existing landfill during the past sixteen years adhering to the strictest regulatory standards governing Waste Acceptance Criteria; and

WHEREAS, the wastes will be placed in EMDF will be comprised of building debris and minimally contaminated soil while elemental mercury will be disposed offsite; and

WHEREAS, construction of EMDF is crucial to completion of DOE's cleanup mission in a timely manner;

WHEREAS, Roane County, Anderson County, Knox County, Loudon County and other adjacent counties and cities have been working in and around the nuclear activities at Oak Ridge for decades and have the employee workforce and skill set necessary to help DOE complete the cleanup mission;

NOW, THEREFORE, BE IT RESOLVED that the Roane County Commission supports DOE's efforts to construct the new onsite disposal facility known as the Environmental Management Disposal Facility (EMDF) in Central Bear Creek Valley near y-12 in Oak Ridge, Roane County, Tennessee.

BE IT FURTHER RESOLVED that a copy of this resolution be transmitted to our state and federal legislators asking for their support of this project.

UPON MOTION of Commissioner Moore, seconded by Commissioner Gann, the following Commissioners voted yes: Bell, Berry, Bowers, Brashears, East, Ellis, Gann, Hester, Hickman, Hooks, Meadows, Moore, White, and Wilson. (14)

The following Commissioners voted No: -0-

The following Commissioners Passed: -0-

THEREUPON the County Chairman announced to the Commission that said resolution had received a constitutional majority and ordered same spread of record.

Comment 36: Comment from Sonya Johnson

I am submitting my comments on the Proposed Plan for providing additional onsite disposal capacity for waste generated from the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) cleanup at the Oak Ridge Reservation (ORR).

The construction of the engineered landfill in the Bear Creek Valley area of the ORR is essential for cleanup to enable mission-critical work at the Y-12 National Security Complex and Oak Ridge National

Laboratory (ORNL). The availability of onsite disposal is important to completing cleanup in a timely and cost-effective manner. The cleanup of Y-12 and ORNL will be magnitudes larger than cleanup of ETTP, generating a massive amount of waste. If waste has to be shipped offsite for disposal, cleanup costs will increase substantially. Not only will we, as taxpayers, have to pay for transporting the waste across the country, we will also have to pay the monumental cost of disposal at another facility. Offsite disposal will also extend Oak Ridge's cleanup timeline.

Onsite disposal supported DOE's success in cleaning up ORR and facilitated the achievement of Vision 2016, demolition of the five massive gaseous diffusion buildings at ETTP. DOE's experience with the existing landfill over almost two decades has shown that onsite disposal facilities can be operated safely and compliantly. Strict regulatory criteria govern the types of waste that are disposed of onsite. The majority of the cleanup waste on the Oak Ridge Reservation has gone to the Environmental Management Waste Management Facility and other smaller onsite disposal facilities, with the remaining, more contaminated waste being disposed of offsite.

Safe operation and continuous regulatory monitoring are essential to landfill operations, and based on past performance, I am certain the new landfill will be built to the highest engineering standards, incorporating appropriate safeguards to protect the public and the environment.

As DOE prepares to address the remaining large-scale cleanup work at ORNL and Y-12, onsite disposal is critical to enabling vital ongoing and future missions at the world-class research and production facilities in Oak Ridge.

If DOE is forced to dispose of the waste offsite, they would be presented with many risks and challenges. Offsite disposal would require transporting waste to ETTP and offloading it to prepare and load it for offsite transportation, which would present risks associated with double handling of waste.

In addition to being less safe, offsite disposal eliminates local jobs associated with constructing and operating an onsite facility, adversely impacting our local economy.

Comment 37: Comment from Dana Hudson

I have worked for a number of years, in and around the Oak Ridge Reservation. As a Safety and Health Representative., [sic] from the early 1980s till present. The workforce at the Oak Ridge Reservation is very knowledgeable and trained in the treatment and disposal of various types of hazardous waste. This from the segregation to the packaging and lastly in the transportation and disposal. The haul road (not a public road) is already here and in place to provide transportation to a new land fill. The employees that work the transportation end have the required training for this task and carry out their the [sic] work activities in a very personal way (take pride in their work kind of way). This eliminates the need for trucking packaged materials across the country through other states and risking the chance of an incident on public-use roads. The new landfill will be constructed with the latest high tech design, by employees who are versed in this type of construction and also operated by trained/knowledgeable employees, this in order to protect human health and the environment.

With all the above I have stated, It is my opinion and my family's opinion the choice for a new landfill within the Oak Ridge Reservation is a no brainer.

Comment 38: Comment from Carolyn Hay Krause

Thank you for the opportunity to comment on the Environmental Management Disposal Facility proposed for construction in Bear Creek Valley in Oak Ridge for the purpose of burial of radioactive and chemical wastes removed from the ORNL and Y-12 sites in the decade of the 2020s.

I know and respect Ellen Smith and Robert Kennedy. I am concerned about Ms. Smith's comments that the new landfill could threaten the integrity of the groundwater and wetlands at whatever Oak Ridge site is selected. I am concerned that the Department of Energy and Mr. Kennedy do not agree on the relative costs of disposing of the wastes in Oak Ridge versus shipping them to a safe disposal site in a dry western state. I think DOE should do more to assure the public that DOE's assertions are correct and honest and that the concerns of Ms. Smith, an environmental scientist who has worked on impact statements, and Mr. Kennedy, a highly competent engineer and computer scientist, are invalid.

I also think that if a decision is made to put the proposed landfill in Oak Ridge, DOE, EPA, and the State of Tennessee should own up to the public that the landfill is not risk-free. There will still be risks that hazardous substances could leave the landfill and enter local water sources, that the costs of disposal in Oak Ridge could exceed the estimates, and that the public perception of Oak Ridge as a clean, safe place to live could be jeopardized, reducing property values and tax revenues to the City of Oak Ridge. That being the case, I believe that DOE should provide the city with a substantial annual payment (like the payment in lieu of taxes in past years) to compensate for the harms these risks could entail.

Comment 39: Comment from Jason Fishel

I do not approve of creating a new site for toxic waste disposal near Oak Ridge because other facilities better suited with lower chances of environmental contamination exist.

Comment 40: Comment from Rhonda Bogard

As a long-time Oak Ridger, and a retiree from a long career at DOE facilities, I am writing to express my opposition to the proposed landfill. I have been watching this process develop for many years and I am disappointed at the outcome of the planning. Normally I find the projects in Oak Ridge on DOE lands to be well thought out, and well executed, and I appreciate the competency of so many of the workers and the managers. But this time it is different. I am going to include some of the words expressed by Ellen Smith, a well-known environmental scientist, because she captures it so well, and it reflects my own views as well. The bottom line, please do not dispose of this waste on the DOE properties in Oak Ridge, but transfer it to a more appropriate geographic location.

“The Oak Ridge environment is a problematic setting for management of highly hazardous waste. This environment has high rainfall; an exceptionally complex combination of geologic and hydrology that that is still poorly understood; and close proximity to water supplies, human populations, and rich ecological systems. Those challenges notwithstanding, we do understand that much of the legacy material will need to remain in the ground where it is, where the federal government is responsible for it in perpetuity. We also understand that the federal government accepted legal and moral responsibility for environmental remediation – for cleaning up the legacy to the extent possible and for preventing future spread of contamination.

Back in the 1990s, community members who had studied the situation agreed that a sensible way to manage some of the lower-hazard waste material produced during cleanup was to consolidate and contain it within an area of the Oak Ridge Reservation that is already permanently dedicated to waste containment

due to its past history. That agreement led to creation of the existing EMWMF landfill, which people expected would serve all of the needs of future cleanup.

Language in DOE's proposed plan seems to try to imply that this new proposed landfill is somehow a result of that agreement, but it isn't. Some reasons:

1. This landfill is outside the bounds of areas that are already dedicated to waste management. Its establishment will increase that dedicated area by not only the 70 acres of the landfill but also an even larger area of unknown size that surrounds it.

2. This landfill is being treated as a Superfund cleanup action, not a landfill, so it would not be required to comply with the normal environmental regulations for landfills – even for ordinary municipal landfills. It could not be built if it had to comply with normal environmental laws and regulations. The proposed site would not even be suitable for a nonhazardous municipal landfill without the waivers that are being requested and that would be justified by the fiction that this landfill is a cleanup action. And a normal landfill would not be allowed to operate for decades without continuing regulatory oversight, but that's what can happen with the proposed EMDF. DOE has cited other sites at precedents for those action, referring to the Fernald site in Ohio and the Weldon Spring site in Missouri. At those sites, DOE demolished a production complex that had not operated for many years and consolidated all of the waste in a single disposal cell on the property. Those were one-time actions that could be addressed in a single decision. In contrast, here we are considering the continuing operation of a landfill over a period of decades, with construction of multiple disposal cells that would receive waste from many specific demolition and cleanup projects. That kind of activity requires many decisions throughout the landfill's operating life and normally would be subject to ongoing regulatory oversight over the years; it's not a single action that can be addressed in a single decision up-front.

3. DOE would not be seeking a new landfill, at least not this soon, if the space in the EMWMF had been used responsibly. If waste had been characterized before disposal, a good fraction of what was placed in the EMWMF would have been found to be clean, and would not have needed to go there.

4. DOE will not tell us what the Waste Acceptance Criteria for this landfill would be – that is, what they would dispose in it.

5. Because this landfill would receive waste from ORNL and is expected to receive mercury waste from Y-12, it would introduce contaminants into the watershed of Bear Creek that aren't part of the contaminant burden in that watershed. Mercury at the Y-12 site is in the watershed of East Fork Poplar Creek, not Bear Creek, and history of work at the ORNL site in Bethel Valley has involved pretty much every radionuclide on the periodic table, most of which were never found at the Y-12 facility. Adding new contaminants into the Bear Creek watershed will add to the monitoring and stewardship burden facing DOE and the community into the long-term future."

Please consider these comments as my own and enter them into the public record.

Comment 41: Comment from John Christian, President, Operational Waste Management, EnergySolutions

EnergySolutions is a privately owned decommissioning and radioactive waste disposal company headquartered in Salt Lake City, UT. Our cornerstone facility is the Clive Utah Disposal Facility which has supported the U. S. Department of Energy offsite low-level waste disposal needs for more than 20 years, including enabling the accelerated closure of the DOE Rocky Flats, Fernald, and Mound sites.

EnergySolutions is prepared to support accelerated closure of the DOE-EM's Oak Ridge Reservation by immediately beginning the receipt and disposition of low-level radioactive wastes as well as receipt, treatment and disposition of radioactive mercury wastes rather than await the permitting and construction of an onsite landfill. The EnergySolutions Clive disposal facility has sufficient capacity to treat and dispose of all the Oak Ridge estimated wastes. When coupled with EnergySolutions' rail equipment and transload operations in Oak Ridge, EnergySolutions can safely and quickly remove the contaminated wastes from Tennessee and dispose of the waste in an arid and licensed landfill.

EnergySolutions has carefully studied the DOE CERCLA RI/FS reports comparing onsite and offsite waste disposal options. Based on existing EnergySolutions contractual pricing with other DOE sites, our technical experience with waste densities, and quoted railroad costs, EnergySolutions is confident that it can support the DOE with offsite disposal at significantly lower costs than estimated by DOE for offsite disposal.

EnergySolutions request that DOE-EM and the local stakeholders consider a larger role for offsite disposal as a means to accelerate closure of the site, shorten the project schedule, and reduce the overall project economics.

We are prepared to have detailed technical discussions of our previous experience which forms the basis of our comments.

Comment 42: Comment from Joan Nelson

I, a resident of Oak Ridge, object to this proposed facility that will be used like a landfill but is being designed to the lesser standards of single use Superfund clean up site. This alone indicates bad faith and management on the part of DOE and a disregard for the residents of Oak Ridge and the surrounding area. The design criteria [sic] and materials-diversion structures, gravel drains, pipes, liners and caps, are not sufficient for the long term protection of our watershed.

Our topography, karst with limestone; and weather, 50 to 60 inches of rain a year, both argue against this kind of disposal facility. These materials should be shipped off site to a facility [sic] like "commercial disposal sites in western states (Utah, west Texas, and Nevada) that are licensed for these wastes, have capacity to accept them, are in dry settings far more physically suitable for waste management, and are already destined to become the legal responsibility of DOE after they are closed – thus saving the long-term costs of dealing with an additional newly created waste site here in Oak Ridge." Quote from Ellen Smith

I understand the DOE will not describe the criteria for waste acceptance, which again shows the lack of good faith on the part of DOE and the continued abuse of the city of Oak Ridge, its residents, its watershed, and the health and well being of the surrounding area.

Comment 43: Comment from Anderson County Board of Commissioners

Part 1. At the December 3, 2018, meeting of the Anderson County Commission, a motion was made and passed by an overwhelming majority of commissioners, to request the Department of Energy to extend the comment period for the proposed Environmental Management Disposal Facility (EMDF) by 90 days. The information that was presented at last night's meeting brought us to the realization of the importance of this proposal to the future impact on our citizens and our governments. More time is needed for our County to research and obtain more details to formulate our comments and questions. We respectfully submit our request for a ninety day extension, and hope for a positive reply.

Comment 44: Comment from Sherry Browder

I'd like to provide a comment in support of the EMDF. Yes, I work for UCOR, but more importantly, I've been an employee in the Environmental Restoration related area in Oak Ridge since 1989. While I wish that there was never a need to EVER have to construct a disposal facility of any kind, let alone a landfill, I understand and support the need to construct EMDF.

I feel confident that it will be designed, constructed, and operated in an environmentally compliant and safe manner.

Comment 45: Comment from Rebecca Bowman

Let me begin by clearly stating that I strongly oppose contaminating any green site within the Oak Ridge City Limits. The DOE is proposing a low-hazardous waste site in Bear Creek Canyon. This site is unsuitable for many reasons. The DOE has not provided answers posed by the City and other interested parties. Without answers to the questions, including the cost benefit analysis compared to off-site storage, it is impossible for the public to comment on this proposal. The DOE has not only failed to respond to our questions, it has refused to extend the public comment period.

This is the second time this year that the DOE has used dubious tactics to disrupt and harm our community. The first was the clear-cutting of Pine Ridge. They filed a Categorical Exclusion to avoid having to comply with regulations that should have applied including informing the City of their intentions to clear-cut 25 acres of mature forest. Using CERCLA as well asking for additional waivers and exemptions for the proposed landfill are the tactics DOE to bypass the community yet again. This appears to be an unacceptable pattern of behavior.

Oak Ridge is the host city for the DOE and acknowledge the benefits of having the DOE here. However; a guest that disregards the well-being of the host is detrimental to all. These decisions must be mutually beneficial and address future impacts on the environment of Oak Ridge and the surrounding areas.

Comment 46: Comment from David Bowman

I am a home owner in Oak Ridge and a nuclear physicist. I urge you not to site a mixed-waste landfill in Bear Creek Canyon. My understanding is that the site is at present undisturbed and free of any waste. Further the waste to go into the landfill is from the cleanup of Y12 & ORNL. The waste would involve radioactive and chemical hazards and cause the creation of a new deposit of mixed waste. I further understand that the ground beneath the site is limestone and subject to erosion by carbon dioxide dissolved in ground water. Barriers and drainage apparatus in the land fill may be expected to fail over the time scale of decades. Then there will be an even larger problem that we have now. There will be more mixed waste than we now have and the new containment may fail and cause the contamination of ground water and the porous lime stone below and down-stream of the site.

Creation of the new mixed-waste site may decrease the quality of the Oak Ridge environment, decrease property values and pose dangers to the population of Oak Ridge and East Tennessee.

Comment 47: Comment from Bill Moore

I would like to express my opposition to the construction of a proposed hazardous waste disposal facility in Oak Ridge, for several reasons. First, although I am not a geologist, I have a friend, Virginia Dale, who is, and has expressed her concerns about the choice of Oak Ridge as a site, based on the geology of this region. I will stand by those concerns. There is already mercury contamination in Poplar Creek, so something which has the possibility of additional groundwater contamination should not be permitted.

Oak Ridge already is seen by many as an unsafe place to live. Many residents have been asked by non-residents if they “glow at night.” I know I have had that experience, and I know it was not a solitary event. It is already extremely difficult to persuade workers at Y-12 and ORNL to live here. One only has to look at the traffic on Pellissippi Parkway to see that the majority of those employees live in the Knoxville area. If Oak Ridge is to maintain itself as a vibrant and vital community, ways need to be found to encourage more of them to live here. The existence of this disposal facility will not facilitate that process, nor one of encouraging new companies and enterprises to locate here.

Please do not approve the construction of this facility. There are existing facilities elsewhere which are much better equipped to handle this sort of waste, and they should be utilized as such.

Comment 48: Comment from David Carlson, President and Chief Operating Officer of Waste Control Specialists

Waste Control Specialists (WCS) is pleased to provide comments on the subject document, hereinafter “proposed plan.” We believe that the preferred remedy – the development of a new disposal cell at Central Bear Creek Valley – should be re-evaluated in light of the availability of existing commercial disposal options such as the WCS facility in Andrews, Texas. As DOE is fully aware, our facility houses both a landfill fully permitted under the Resource Conservation and Recovery Act (RCRA), subtitle C, which can accept low activity radioactive waste up to approximately 10% of the Class A limit and a Federal Waste Disposal Facility (FWF) designed, permitted, and constructed for the disposal of Class A, B and C Low-Level Radioactive Waste (LLW) and Mixed Low-Level Waste (MLLW). Both facilities are directly accessible via our onsite rail spur.

During our review of the proposed plan and associated documents, it is clear that utilization of our facility was not fully considered. In the summary table of alternatives (Appendix A), it is noted with approval that the use of “offsite facility locations in arid environments reduce the likelihood of contaminant migration, and fewer receptors exist in the vicinity of EnergySolutions and NNSS than near the ORR.” Clearly this same factor exists with respect to the WCS facilities in Andrews.

If DOE had conducted a fuller exploration of our facilities, we could have provided a more realistic picture of offsite disposal costs. The proposed plan states that the cost of offsite disposal would be in a range of \$675-\$767 per cubic yard in present worth 2016 dollars. Our experience suggests that the true costs at WCS or other commercial disposal facilities would more likely fall in the range of \$150-\$300 per cubic yard (depending on soil and debris mix); transportation costs would be between \$125 and \$180 per cubic yard (all in 2018 dollars). As such, the “breakeven volume” as identified in the proposed plan extends significantly beyond the estimated 750,000 cubic yards and could well, given current uncertainties in total volumes to be remediated, extend through the lifetime of the program. At the very least, we believe the true cost of the offsite option at WCS compares favorably with the \$276 estimated cost of the preferred alternative and provides the Department with a fully constructed, fully licensed, and readily available alternative.

It would appear that beyond cost, a significant factor motivating the Department to pursue an onsite option is the stated “significantly greater” risk to the public from injuries and/or fatalities resulting from transportation. Given the availability of transport directly to the WCS facilities by rail, these risks are significantly reduced. In addition, we do not believe that the transportation statistics that were used are truly indicative of the US experience with safe transportation of radioactive waste.

We appreciate that DOE has given significant time and attention to the challenges of siting, licensing and constructing its preferred alternative (evidenced by the collection and analyses of additional field data). As documented in The Ferguson Group September 4, 2015 report on earlier DOE plans, there are inherent

challenges in designing a site within the ORR due to factors ranging from “the limitation of using the Superfund law and NCP regulation to determine the efficacy of siting a low-level nuclear and hazardous waste landfill” to “the highly complex nature of the fractured bedrock hydrogeology.” Our experience with long term cell performance assessment modeling suggests that properly constructed and licensed facilities in arid climates can more clearly demonstrate that the facility, post closure, will not exceed points of compliance or have peaks beyond the period being analyzed.

In summary, we believe that the proposed plan fails to recognize that a mature and competitive commercial marketplace for disposal of DOE waste material has developed in the United States, a marketplace that has been encouraged by the Department. Should you desire, we would be happy to meet with you to discuss a bulk rate we could provide for the disposal envisioned by the proposed plan.

Comment 49: Comment from Ann Mostoller

Please add my name to those opposed to the new DOE landfill in Oak Ridge.

Comment 50: Comment from Meg Tufano

Please reconsider. This is not the right terrain for this kind of waste.

It is just convenient.

Comment 51: Comment from Abbie Moore

I am not an environmental scientist but my friends who are have spoken out about this proposed landfill. I trust them to tell the truth. I trust that when they say this is dangerous for Oak Ridge, I believe them. Our City already has problems attracting new, young, educated families who are the hope for our survival as a community. This dangerous proposed landfill will only serve to scare new families away. Please listen to experts who say Oak Ridge is not suited for this landfill. Please listen when they say other sites are better suited. I want to go on public record in opposition of this proposed landfill. Please listen to the people who want to continue living in Oak Ridge, who want their children to continue living here. Do not build the hazardous waste landfill in or around Oak Ridge, TN.

Comment 52: Comment from Keith L. Kline

I do not support establishment of new disposal facility on the Oak Ridge Reservation (the Onsite Disposal Alternative) for the following reasons:

1. This region is inappropriate based on climate, hydrology and geology for this sort of facility.
2. DOE’s proposed site would unnecessarily harm a relatively undisturbed area; calling this environmental destruction a “remedial action” appears to undermine the intent of CERCLA.
3. Proximity to residential areas is nearly impossible to avoid in this region.
4. A complete environmental impact assessment (EIA) process should be completed, including time for public input and public review or the resulting Environmental Impact Statement. The EIA should compare options in East Tennessee with other options more suited for this type of facility.

Clean water and a safe future for our children and subsequent generations is more important to the community than a few jobs in the short term. Thank you for considering my comments on this important matter.

Comment 53: Comment from Jerry Creasey

My name is Jerry Creasey, I live at 114 Orchard Lane in Oak Ridge, Tennessee. I am a retiree of the Y12 Plant.

I came to work at Y12 in the summer of 1968 and retired July 31, 1994. My daily work assignments during my first five years (1968-1973) where [sic] in Building 9201-5 (Alpha 5 East) I quickly became familiar with the mercury contamination of this building. Mostly from leaks from ceilings, standing mercury on pipes and beams eventually running off into the floor, and into the crawl space underneath, where mercury was accumulating into small puddles. To my knowledge Beta 4, Alpha 4, and Alpha 5, have not been demolished, and in my opinion are not only contaminated, but saturated with Mercury.

Some of the folks speaking at the public hearings and meetings have expressed it may be a good option to send such demolition materials to a more arid environment for storage in western states, if some of their concerns such as materials with mercury, cannot be corrected locally with the present proposal.

I believe the comments from the City of Oak Ridge Manager Mark Watson, City Councilwoman Ellen Smith, and EQAB President Robert Kennedy, as well as those of TDEC, and other members of the Oak Ridge City Council, are very valid concerns. I believe that you also agree that these are valid, and will do all you can to see they are addressed.

I respectfully request you will extend the deadline for comments on the proposed EMDF by 90 days, as recently requested by the Anderson County Commission.

Comment 54: Comment from Daniel Macias

I agree that a new CERCLA landfill is needed in Oak ridge to maintain cleanup activities progressing past ETTP cleanup. Construction and safe, compliant operation of a new landfill represents the most cost effective approach for disposal of cleanup waste from the ORR and is in the best interest of the citizens of Oak Ridge and East Tennessee.

Comment 55: Comment from Dale C. Strasser, MD

I am writing to express my concern of the proposed Onsite Disposal facility to be located at Central Bear Creek Valley. The experience of the TVA Fossil Fuel Plant spill in Kingston, TN serves as a sobering reminder of unintended consequences of land management and waste (of any variety) storage. As I understand this is a large and diverse amount of toxic waste. The geology of this area in East Tennessee is porous in unusual and hard to predict ways. I was born and raised in Oak Ridge in late 1950s through the mid 1970s and have been a local land owner since that time. My family and I spend extended vacations near Kingston. I share the reservations expressed by many others on this facility. If the facility is eventually build [sic] in the proposed area, I urge that all proper safety precautions be taken into account with the realization that the material will be around for a long, long time.

Comment 56: Comment from Sophia Krusen

My name is Sophia Krusen. I am an Oak Ridge High School student and a youth member of the Environmental Quality Advisory Board (EQAB). As a resident of this town, I am becoming concerned about potential toxic seepage from the waste that will be deposited in Bear Creek Valley. I worry that as more waste landfills are located here, the quality of our ground and surface water will worsen. Tennessee is a very rainy state; therefore, the potential of harmful materials leaking from the landfill increases. For long term landfill solutions, locating disposal facilities in dry climates far from the water table would be more beneficial for the environment. Thank you for taking my concerns into consideration.

Comment 57: Comment from Emily Strasser

I am concerned that the current plan is opposed by key experts and local leaders including TDEC, many city officials, and the local Sierra Club chapter. As TDEC demands, DOE needs to provide full and transparent details about exactly what kind of waste and how much it intends to put into the landfill before ANY plan is approved. Particularly, due to the already high prevalence of mercury in area waterways from legacy contamination, the DOE must be explicit about the amount of mercury that will be buried in the proposed landfill.

I share Council member Ellen Smith's view that none of the three proposed sites is acceptable for burying radioactive and hazardous waste due to complex groundwater systems that are likely to aid the spread of contamination into area waterways. The use of underdrains to lower the groundwater level around the proposed site is an unacceptable solution; underdrains may provide routes for waste to leak, and if they fail, may cause the landfill to become less stable and more vulnerable to water contamination. With the state's high level of precipitation, the area's porous geological formation, and complex groundwater system, it is ill-suited for such a landfill.

My family has longtime ties to Oak Ridge (my grandparents moved there in 1943), and owns land on Watts Bar Lake that we hope to share with generations to come. In order to protect the long-term future of the area, I urge the DOE to not to go ahead with this risky and dangerous plan.

Comment 58: Comment from Sam Webb

The Emdf would be better suited in the outback of utah [sic]

I know transportation costs would be high, But not as high as the costs to enviroment and people in a already [sic] hazardous zone which has taken decades to reclaim

The legal battles with be [sic] astronomical just ask tva

Comment 59: Comment from Louise McKown

I am not an environmentalist advocate, now [sic] do I work at the DOE plants. However, I have been known to speak my mind on disability and health care issues. The disability community has a saying, "Nothing about us without us." That means being at the table when important issues are discussed and seriously being listened to and not being written off as a bunch of uneducated, ignorant people when decisions about our lives are being defined.

You did not allow the representatives of Oak Ridge that we elected for City Council to be at the table when you decided where to dump all the stuff that this landfill will hold. Nor did you allow environmental advocates to be there either----people like Ellen Smith and Virginia Dale who I know and respect their opinion. Their fears are not unfounded. Mercury in the Alpha facility is there and the last thing we need here is another mercury spill or leakage over time---hat [sic] would not happen if you shipped this material to the western part of the country. It may cost more, but you will not end up being pound foolish.

Not as many Oak Ridgers work at the plant as when I was growing up here in the 50s and 60s. Instead they live in Farragut, Hardin Valley, other parts of Knox or Anderson Counties----for fear of what DOE is going to dump here. I suggest you buy some land in West Knox County and dump all this toxic stuff there! But you know full well, you would never be able to do it because of the outcry of people who only work, but dare not live here! You should be striving to correct that stereotype and make this place the absolute safest place to live and work. We do not deserve to have our home values diminished because of your

decision to put the landfill here. There is no doubt in my mind that will happen. Those of us who live here like our schools and not having to deal with massive traffic to get to work. We are not undereducated about what DOE does and you should not write us off as ignorant people. Stop being penny wise and pound foolish when it comes to our and our grandchildren's health and safety.

I am now house or property hunting because my sister is moving back to Oak Ridge. Because of your reluctance to send this toxic material to Utah, I know not to buy out in Roane or the western part of Oak Ridge that has great housing or a new development of upscale homes off Tusculum. Talk about reducing the housing stock even further than it is. Well, you have one [sic] it. And that is not fair or what this City needs.

Thanks for at least letting us submit comments. I seriously doubt you will get many from West Knox County.

Comment 60: Comment from Robert Kennedy

Part 1: DOE OREM should not create yet another waste cleanup by ruining a beautiful 70-acre greenfield in Central Bear Creek Valley.

No mercury whatsoever should be buried within city limits of Oak Ridge – every bit must go out West.

All waste and building debris should be properly characterized before disposal.

Part 2: When you're in a hole, the first rule is, *stop digging!*

There's a sign from TDOT on the recycle bin downstairs that says, "Nobody Trashes Tennessee". Yet that's exactly DOE's fixin' [sic] to do by putting another nuclear waste dump inside the city limits of Our Fair City.

Why would anyone want that stuff here? What's the interest? The answer is, *the tipping fee*. Either way, there's plenty of paying work to do—work by deconstruction people to demolish the buildings, work by technicians and scientists to characterize and treat the waste, work by truckers to haul it around. The only difference is where it ends up. If it goes to a safe landfill out West, then the DOE contractor UCOR doesn't get their tipping fee for dumping the stuff here. Someone else gets the tipping fee. *That's the interest*.

Would Providence will [sic] let someone in Heaven for poisoning Posterity? For doing that to their grandchildren—for money? I should think not. Let's *stop this stupidity*.

If not us, who? If not now, when?

Comment 61: Comment from Shigeko Uppuluri

My name is Shigeko Uppuluri

We have lived in Oak Ridge since 1963 and we love this beautiful, friendly and very active community.

Please put your best thought and highest intelligence [sic] and do the best for this important historical community and please do not do any harm to our town so that our children will do well in their life and live with happiness and responsibility to their family and country.

Do not deposit any hazardous materials near Oak Ridge.

Comment 62: Comment from W. Mark Logan

Please be advised that it is my opinion that this landfill should **not** be built in or near Oak Ridge or for that matter in the state of Tennessee. The waste destined to be stored at this facility when constructed should be shipped to an existing facility out west perhaps in Nevada, New Mexico or Utah. There are existing facilities in these locations. These areas are also more geologically stable, have less of a groundwater problem and are not as near to major population centers. Also please consider the following when making your decision:

- Mr. Jones [sic] and Mr. Rector's cautionary slideshow.
- Letters on this subject to the Oak Ridger newspaper.
- Numerous Oak Ridger newspaper articles on the subject.
- TDEC EMDF Fact sheet (s)

I have worked in Oak Ridge for many years at the Y-12, K-25, and ORNL sites as a contractor. Part of my duties involved preparing plans for the removal, storage, and security of hazardous waste. I have a definite appreciation of what is here, what needs to be done, and how to properly do it.

Comment 63: Comment from Barbara Eggert

Much money has been spent in trying to clean up some of the hazardous buildings, equipment, containers and etc. that have already been dumped, buried, or abandoned in place from prior years in Oak Ridge/Roane County.

If TDEC experts and environmental scientists recommend that hazardous waste be removed from populated areas so it can be safely monitored and maintained “forever” or the life span of the materials and chemicals, why is DOE not listening.

Stop the dumping in Oak Ridge and surrounding area. This is a financial issue with DOE but it is a financial and health issue for the community.

Comment 64: Comment from Leo Sain

As a resident of Oak Ridge and former Oak Ridge cleanup executive with extensive experience, I am submitting my comments on the Proposed Plan for providing additional onsite disposal capacity for waste generated from the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) cleanup at the Oak Ridge Reservation (ORR).

The construction of the engineered landfill in the Bear Creek Valley area of the ORR is essential for cleanup to enable mission-critical work at the Y-12 National Security Complex and Oak Ridge National Laboratory (ORNL). The availability of onsite disposal is important to completing cleanup in a timely and cost-effective manner. The cleanup of Y-12 and ORNL will be magnitudes larger than cleanup of ETTP, generating a massive amount of waste. If waste has to be shipped offsite for disposal, cleanup costs will increase substantially. Not only will we, as taxpayers, have to pay for transporting the waste across the country, we will also have to pay the monumental cost of disposal at another facility. Offsite disposal will also extend Oak Ridge’s cleanup timeline.

Onsite disposal supported DOE’s success in cleaning up ORR and facilitated the achievement of Vision 2016, demolition of the five massive gaseous diffusion buildings at ETTP. DOE’s experience with the existing landfill over almost two decades has shown that onsite disposal facilities can be operated safely

and compliantly. Strict regulatory criteria govern the types of waste that are disposed of onsite. The majority of the cleanup waste on the Oak Ridge Reservation has gone to the Environmental Management Waste Management Facility and other smaller onsite disposal facilities, with the remaining, more contaminated waste being disposed of offsite.

Safe operation and continuous regulatory monitoring are essential to landfill operations, and based on past performance, I am certain the new landfill will be built to the highest engineering standards, incorporating appropriate safeguards to protect the public and the environment.

As DOE prepares to address the remaining large-scale cleanup work at ORNL and Y-12, onsite disposal is critical to enabling vital ongoing and future missions at the world-class research and production facilities in Oak Ridge.

If DOE is forced to dispose of the waste offsite, they would be presented with many risks and challenges. Offsite disposal would require transporting waste to ETTP and offloading it to prepare and load it for offsite transportation, which would present risks associated with double handling of waste.

In addition to being less safe, offsite disposal eliminates local jobs associated with constructing and operating an onsite facility, adversely impacting our local economy.

Oak Ridge is my home. I love this community and wholeheartedly endorse moving forward with the proposed Environmental Management Disposal Facility for continued protection of its beautiful environment.

Comment 65: Comment from Sidney W. Jones, Ph.D., P.E., P.G

Thank you and the Department of Energy for the opportunity to comment on this proposal for a new radioactive and hazardous waste landfill in Oak Ridge. Given the information currently available to me, I support the choice of the hybrid alternative rather than the preferred alternative put forth by the Department of Energy (DOE) in this Proposed Plan. The hybrid alternative proposes that a disposal facility be located in Bear Creek Valley adjacent to the Environmental Management Waste Management Facility (EMWMF) between tributaries to Bear Creek. The hybrid alternative also provides for significant quantities of waste to be shipped offsite.

My conclusion is based on a thorough reading of the administrative record and a fairly extensive knowledge of the types of contamination present in future waste that might be generated by CERCLA activities on the Oak Ridge Reservation (ORR). It is informed by my familiarity with the locations in Bear Creek Valley that are discussed in this Proposed Plan and by decades of accumulated knowledge about solute transport in groundwater and surface water, derived in part from conducting, interpreting, and modeling quantitative tracer tests in Oak Ridge and throughout Tennessee. It is also the result of first-hand experience with problems that occurred over a period of nearly two decades at the EMWMF, some of which are documented in Attachment 1 to these comments.

I offer these observations, which I believe are supported by the comments that follow:

(1) Additional on-site disposal capability is likely to benefit clean-up efforts on the Oak Ridge Reservation. However, as presented in the Proposed Plan, the preferred alternative exaggerates the necessary capacity of the proposed landfill and the estimated cost savings.

(2) The hybrid alternative includes a landfill that would be located between the current CERCLA waste disposal facility and Bear Creek Burial Grounds. The site has already been used as a borrow area for

EMWMF, and its use for waste disposal would not significantly expand the overall footprint of brownfields in Bear Creek Valley.

(3) The smaller volume of the on-site CERCLA landfill would encourage DOE and their contractors to implement better waste management strategies, including waste minimization, volume reduction, strategic use of existing ORR landfills already permitted by the Tennessee Division of Solid Waste Management, and efficient use of off-site facilities.

Comment 65.1: General comment: The Proposed Plan and the administrative record that is currently available to the public do not provide a sufficient basis for choosing a preferred alternative. The waste generation forecasts and the cost estimates are questionable, and very little relevant information is given on waste characteristics or the limitations that will be imposed on waste acceptance. There is very little hydrologic data at sites that would be used for DOE's preferred alternative or for the hybrid alternative, and there is not consistent information on which rules will be used to regulate operations and closure of the facility. Since the Department of Energy (DOE) asserts that much more information will be available when the Record of Decision is written, DOE should solicit public comment at that stage.

Comment 65.2: In **specific comments** below, quotations from the Proposed Plan are in bold type, and proceed in the same succession as the text or figure is found in the document. Some acronyms may be used without explicit definition in the same context as used by DOE in the Proposed Plan, such as EMDF, EMWMF, FFA and ORR.

Page 1. Under the initial description of the Proposed Plan, DOE claims: **Onsite disposal facilitates timely cleanup of the OR Site by providing a cost-effective, protective disposal option. An onsite disposal facility within Central Bear Creek Valley protects human health and the environment and achieves or waives all applicable or relevant and appropriate requirements (ARARs), while obtaining the best balance of the remaining CERCLA remedy selection criterion. This Proposed Plan includes a summary explanation of proposed waivers.**

As discussed in more detail in the comments that follow, the RI/FS and administrative record do not provide waste acceptance criteria (WAC) for the proposed facility or any reliable description of the future waste streams. The reader of the Proposed Plan cannot, without this information, verify that a facility with a 2.2 million cubic yard capacity will be needed. There is general information in the administrative record on the characteristics of possible sites that provide evidence to support the choice of Central Bear Creek Valley over other locations for a facility with a capacity of approximately 2 million cubic yards. However, the DOE preferred alternative utilizing the Central Bear Creek Valley location might not be the optimum choice for balancing CERCLA remedy selection criteria if the volume of waste to be disposed at a new facility turns out to be significantly less than 2 million cubic yards. If more detailed waste characterization and segregation allows significantly more wastes to be disposed at DOE's permitted landfills on Chestnut Ridge or if protective waste acceptance criteria prevent disposal of large volumes of waste in Oak Ridge, the capacity demand for a new CERCLA disposal facility might be reduced to the point that either the Hybrid or Off-Site option would be the better alternative.

Comment 65.3: Page 5. In Paragraph 1 of the WASTE CHARACTERIZATION AND VOLUME section, DOE states: **The final capacity assumed to be needed for completion of the OR Site cleanup is estimated at 2.2 million cubic yards.**

This is based on the inventory of waste streams to be generated from remediation of soils and demolition of contaminated facilities listed in Appendix A of *The Remedial Investigation/ Feasibility Study for Comprehensive Environmental Response, Compensation, and Liability Act Oak Ridge Reservation Waste Disposal, Oak Ridge Tennessee, 2017*, although the Proposed Plan does not state this explicitly. The

estimate of capacity needed was not revisited as DOE submitted 5 drafts of the RI/FS over the five years from 2012 to 2017, although regulatory comments (available in the administrative record) questioned the validity of the approach used.

The questions that were raised primarily concerned (1) whether DOE's waste hierarchy scheme was properly applied, and whether waste included in the EMDF capacity demand could be disposed at permitted landfills on the ORR with minor additional characterization and waste handling costs, (2) whether volume reduction techniques had been properly considered, and (3) why the estimated volume was then increased by 25 percent.

The Proposed Plan discusses this additional 25 percent volume in terms of conservatism in the third paragraph of the WASTE CHARACTERIZATION AND VOLUME section:

Uncertainty is accounted for in the waste volume estimates by adding a straight percentage (25 percent, increase only to be conservative) to the projected volumes.

DOE's response to regulatory comments was to revisit their analysis of volume reduction and reiterate their commitment to the waste hierarchy and waste minimization. However, because there are not suitable sites for a waste disposal facility with a large, contiguous footprint in Bear Creek Valley or elsewhere on the Oak Ridge Reservation, the volume of the waste buried needs to be minimized, even if this increases costs. A facility with a smaller footprint can be designed further from surface streams and avoid areas with high water tables or steep slopes, resulting in a more stable landfill over time. DOE seems to be preoccupied with cost estimates alone, perhaps not understanding the inevitable trade-off between cost and long term effectiveness that results from the constraints of unfavorable site characteristics.

Comment 65.4: Page 5. In Paragraph 2 of the WASTE CHARACTERIZATION AND VOLUME section, DOE states: **Projections of future waste streams are based on available data for wastes disposed at EMWMF combined with available information on the facilities and environmental media yet to be remediated.**

The use of wastes disposed at EMWMF to project future waste characteristics is unlikely to result in an accurate estimate of radiological and chemical contamination in future waste streams. The primary two causes for error due to extrapolation of EMWMF waste characteristics to EMDF waste streams are (1) most waste disposed in EMWMF was generated at ETTP, and will have different contaminants of concern than the wastes streams projected for EMDF, which will primarily be from Y12 and ORNL, and (2) the characterization data for many radionuclides present in EMWMF is quite sparse and the inventory of these isotopes is almost certainly underrepresented because the development of waste acceptance limits and protocols at EMWMF was fundamentally flawed and only corrected in an inconsistent and ad-hoc manner by individual waste generation projects.

DOE continues: **An estimate of the amount of radiological and chemical contamination that may be in future waste streams was developed from information about future remedial actions. Information from remedial investigations of soil, scrap, and sediment contamination and information from building sampling efforts were used along with process knowledge of activities that occurred in the buildings.**

This may be the case, but the RI/FS cited above as the basis for this Proposed Plan uses only the characteristics of wastes disposed at EMWMF to estimate the radiological and chemical contamination in waste streams. The waste inventory analyzed in the D5 RI/FS, cited above, was not updated from the original RI/FS that was based on EMWMF disposal records up to 2012. The RI/FS inventory does not represent the characteristics of wastes disposed over the last third of the operational history of the

EMWMF. Thus, the administrative record does not contain any estimates of amounts of radiological and chemical contamination developed from information about future remedial actions or even from waste streams disposed at EMWMF for the last half dozen years. If DOE has developed such information, it should be made available to the regulatory authorities and the public before a decision on a preferred alternative is selected.

The third paragraph mentions the use of Waste Handling Plans: **Future CERCLA documents (e.g., Waste Handling Plans) will address the management of the projected wastes for each cleanup activity. These Waste Handling Plans are reviewed and approved by all three FFA parties for consistency with ARARs and other requirements.**

This statement could lead the reader of the Proposed Plan to believe that State and EPA approval was required for disposal of wastes generated from individual clean-up activities. However, Waste Handling Plans are usually approved prior to any detailed waste characterization, and final approval of each waste stream has not, historically, required approval of the regulators. In practice, either the contractors generating the waste or entities that subcontract from the waste generator have been in charge of final approval of individual waste lots at EMWMF, setting up a potential conflict of interest. In certain cases where wastes were inappropriately disposed of in EMWMF (see Attachment B), it seems probable that the waste acceptance process, in addition to a confusing set of waste acceptance criteria, contributed to the root causes of the inappropriate disposal. At any future disposal facility operating under CERCLA authority, the waste acceptance methodology employed at EMWMF should not be replicated, but replaced with a protocol that requires final approval of waste lots for disposal by representatives employed directly by the three FFA parties, DOE, EPA, and TDEC.

Comment 65.5: Page 6. In the paragraph of the BASELINE RISK SUMMARY section, DOE concludes: **While cleanup decisions for the remediation sites have been made or will be made in separate, individual CERCLA decision documents, the decision being addressed in this case is the disposal of the projected volume of waste to be generated by these actions. Therefore, a conventional baseline risk assessment does not apply to this evaluation.**

This approach precludes a comparison between the risks posed by leaving contaminated material in place and the risks posed by burying the material. Should the contaminants responsible for the hazard decay or degrade to innocuous levels over the time frame during which the landfill might effectively isolate these contaminants from the environment, then disposal, either on-site or off-site, would evidently offer significant advantages over leaving the material in place. However, many of the contaminants present at hazardous concentrations in remediation waste in Oak Ridge will not decay or degrade to nonhazardous levels under ambient conditions and have already survived for many decades. In the case where the contaminants of concern do not degrade or decay, as with mercury and other heavy metals, or in the case where radioactive daughters may actually increase the hazard over time, as with uranium, the isolation afforded by even a well-constructed shallow surface disposal facility will be temporary in a humid environment like Oak Ridge. There are potential sources of remediation waste on the Oak Ridge Reservation where a comparison between the long-term effectiveness and costs of a no-action alternative with the on-site disposal alternative, using similar assumptions about land-use controls and consistent scenarios for exposure, would be useful to decision makers.

Comment 65.6: Page 8. In the NO ACTION ALTERNATIVE section, DOE states: **Under this alternative, no comprehensive site-wide strategy would be implemented to address the disposal of waste resulting from any future CERCLA response actions at the OR Site after EMWMF capacity is reached. Future waste streams from site cleanup that require disposal after EMWMF capacity is reached would be addressed at the project level.**

DOE Order 435 requires that Oak Ridge develop, document, implement, and maintain a Site-Wide Radioactive Waste Management Program. This requirement would presumably result in a site-wide strategy for disposal of radioactive waste that was generated by CERCLA actions as well as waste generated from ongoing operations.

Comment 65.7: Page 8. The final sentence in the NO ACTION ALTERNATIVE section is: **This alternative provides a baseline for comparison with the action alternatives and is required under CERCLA and NEPA.**

The No Action Alternative should have been developed in more detail. In reality, the options for disposal of CERCLA generated waste under the No Action Alternative would default primarily to (1) burial of waste generated by demolition actions at the site of generation, (2) disposal of waste at permitted landfills on the Oak Ridge Reservation, and (3) disposal of waste at permitted offsite landfills, including those permitted for disposal of hazardous and radioactive waste. A more thorough evaluation of possible waste streams generated through future CERCLA actions should have been made to arrive at some estimate of the volumes that would need to be disposed by each of the means described above. The risks and costs associated with the optimal combination of these disposal options would have provided a much better baseline for comparison with other alternatives.

Comment 65.8: Page 8. In the ONSITE DISPOSAL ALTERNATIVES section, the third paragraph states: **Data gathering has begun consistent with the approved Field Sampling Plan, and DOE issued a “Pre-published Technical Memorandum #1,” summarizing the results of the first round of data gathering. A preliminary review of this Technical Memorandum #1 indicates that the conceptual design of the EMDF as presented in the RI/FS and this Proposed Plan may need to be revised to accommodate the new information on site hydrology and to satisfy the threshold CERCLA criteria.**

This statement indicates that the selection of the preferred alternative at this stage is premature based on the initial site characterization data. In addition, as noted in the comments above, the selection of the preferred alternative is premature based on the lack of waste characterization data. If DOE has data on the characteristics of either the waste or the various proposed sites that is not in the administrative record that support their choice of a preferred alternative, they should make this available to the public and the regulatory agencies. After a review of the approximately one month of water level data and other site characterization data in Technical Memorandum #1, I could find no basis for establishing the seasonal high water table. A water table map is required to show that the facility can meet regulatory siting requirements, and is typically the first step in developing the areal footprint and base elevations of a landfill.

Comment 65.9: Page 9. In the Waste Acceptance Criteria section, first paragraph, DOE states: **In addition to siting and designing the facility to minimize environmental impacts, DOE proposes to conservatively evaluate all wastes before acceptance to confirm their eligibility for disposal in the onsite facility.**

The administrative record shows that DOE efforts to develop waste acceptance criteria through site specific risk assessments, based primarily on a scenario of a future resident using water resources in Bear Creek Valley, were not successful. The limiting concentrations of contaminants in waste that were derived from the analysis varied significantly from one version of the RI/FS to the next. The effort to derive WAC is presumably ongoing, as DOE states on page 12, that: **The final WAC will be attached to the ROD prior to signature and will be one of many factors used by DOE to assure protection of human health and the environment.**

Prior to selection of a preferred alternative, defensible preliminary WAC should have been developed and the projected waste inventory for the proposed landfill screened against those WAC to better estimate the

airspace required to dispose of those waste that were suitable for on-site disposal. DOE is apparently assuming that the volume that cannot meet WAC will be negligible, but given the levels contamination from mercury, uranium, and fission products in some of the waste streams listed in the RI/FS, this assumption needs justification.

Comment 65.10: Page 9. In the Waste Acceptance Criteria section, first paragraph, DOE continues: **The existing landfill, EMWMF, is operating under controls provided by the WAC. These WAC can be found in the Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation (DOE 2001) which can be found in the Administrative Record. While the EMDF WAC will be developed independently of the EMWMF WAC, the existing WAC provide examples of what encompasses a disposal facility WAC.**

The EMWMF WAC, cited above, provides an excellent example of how not to develop waste acceptance limits at a disposal facility. The WAC supplied by the site-specific risk assessment in the EMWMF RI/FS and an addendum to that RI/FS only limited concentrations of 12 radionuclides and 23 hazardous chemicals. No concentration limits were imposed by the risk assessment on mercury, beryllium, arsenic, or cadmium, and none were imposed on radium isotopes, fission products such as cesium 137 and strontium 90, or the Curium isotopes. These hazardous metals and isotopes are known to be contaminants of concern on the Oak Ridge Reservation. These results imply that no significant risk to human health or the environment would result if, for example, the entire EMWMF were filled with mercury, arsenic, or radium. Since no restrictions were imposed on the physical or chemical state of mercury, the 2-million-cubic-yard EMWMF would have easily held all the mercury estimated to have been mined throughout history on Earth. Of course the inventory of mercury on the ORR was never more than a small fraction of this amount, but such conclusions should have been immediately suspect and initiated another risk assessment effort.

These WAC were also based on a volume weighted sum-of-fractions of concentrations of the contaminants, disconnecting both the mean concentration and total inventory of a given contaminant in the facility from the actual risk posed by the hazardous constituent. In the case of risk to water resources in Bear Creek Valley, any averaging of concentrations should be based on contaminants weighted by mass rather than volume. Except for limits for technetium 99, contaminant concentrations at EMWMF were effectively dictated by RCRA rules that were incorporated as ARARs into the EMWMF Record of Decision or by limits negotiated with the regulators. These negotiated limits were not based on a site-specific risk assessment, and the site-specific risk assessment for EMWMF was clearly not credible, so the question of whether CERCLA threshold criteria will be met at EMWMF remains open. If the process for the development and enforcement of waste acceptance limits at EMDF is as flawed as that at EMWMF, then the claim that CERCLA threshold criteria will be met cannot be defended and the preferred alternative should not be implemented.

Compliance with waste acceptance criteria at EMWMF was also difficult to audit because of the use of averages and the several different types of limits that were negotiated without specifying details of implementation. For example, there was confusion over whether administrative WAC should apply as limits on a specific waste package or on an entire waste lot. Several ad hoc protocols to deal with these issues were developed over time, but were never codified in the WAC attainment plan for EMWMF.

Comment 65.11: Page 11. **Figure 7. Central Bear Creek Valley EMDF site plan.**

The conceptual design of the landfill for the preferred alternative as depicted here and in the administrative record has disposal cells oriented perpendicular to the general slope of the topography. This would seemingly require either a very complicated geometry for the liner or stepping down abruptly from one phase of landfill construction to the next, thus wasting significant amounts of airspace. Stepping abruptly

down from one phase of landfill construction to the next would also potentially make clay compaction more time consuming and create more stress in geomembranes due to folding, while a complex geometry for the landfill floor would complicate the design of an adequate leachate collection system. DOE should discuss their conceptual design with an engineer who has had landfill design experience.

Comment 65.12: Page 12. The purpose of WAC is to allow the disposal of only those wastes that could be protectively managed within the facility and ensure protection of human health and the environment. Wastes that do not meet the WAC will require offsite disposal or receive treatment.

None of the risk assessment efforts in the administrative record have resulted in limits on mercury inventory in waste to be disposed at the proposed landfill. Without limits based on the site-specific risk assessment required by CERCLA, the hazardous waste regulations that restrict land disposal of mercury will serve as default limits. This has been the case throughout the operational life of EMWMF, as the hazardous waste rules were if [sic] adopted as applicable to this remedial action. If the hazardous waste rules are adopted at the proposed disposal facility as anticipated, they may indeed prove adequate to protect groundwater resources from most hazardous constituents. However, a credible site-specific risk assessment should be made for contaminants that undergo significant bioaccumulation in surface water environments. Bioaccumulation creates a potentially important pathway for future risk to human health and the environment that was not considered to be relevant when land disposal restrictions were developed. In particular, future impacts due to disposal of mercury and PCBs should be considered in detail, as they will certainly be present in ORR waste and as the receiving streams for future releases from the proposed facility are already impacted by these hazardous chemicals.

DOE modeling as described in the administrative record assumes that mercury and other contaminants are adsorbed on mineral surfaces in a soil matrix rather than in debris generated from building demolition. Because of such simplifications, several of which are discussed in subsequent comments on WAC development, development of credible waste acceptance limits for mercury in a matrix of construction debris remains critical to ensuring that the preferred alternative will protect human health and the environment. The proposed waste inventory given in the RI/FS includes over 300,000 cubic yards of demolition material from the West End Mercury Area (WEMA) at Y-12. It is anticipated that some significant portion of this debris will be contaminated with elemental mercury. To date DOE has offered little information on the anticipated volume of WEMA debris that will require treatment under the 40 CFR 268.40 treatment standards for high mercury content wastes.

With the exception of Appendix C in the D3 draft of the RI/FS, the administrative record has little information on DOE's plans for disposal of mercury-bearing waste at the proposed landfill. The preferred technical approach presented in the D3 draft is encasement of debris at the landfill in large concrete vaults (30 feet X 30 feet X 10 feet). On this scale, the encasement material would be unlikely to contact much of the waste, and would primarily serve to provide an additional hydraulic barrier layer to infiltrating water. Such large vaults, unless they were well reinforced, ideally placed, and properly supported so that cracking under tensile stresses resulting from differential settling or unequal loading was minimized, would be considerably less durable than barrier layers of plastic and clay in [sic] the landfill cap and liner. Even if this approach provides better hydraulic isolation of the waste, the long-term effectiveness would not be equivalent to that provided by encapsulation on a smaller scale. For waste encapsulated in smaller containers, much better contact with waste surfaces would be achievable. If the encasement material adhered well to the waste surfaces, hydraulic isolation would be greatly improved, and if the encasement material reacted to immobilize the contaminant chemically, leachability would be reduced. The administrative record has no information that would permit a useful comparison between the efficacies of their preferred technical approach and other approaches to treatment, and DOE has not indicated in this Proposed Plan or elsewhere whether or not their approach has been modified.

Comment 65.13: Page 12. The final WAC will be attached to the ROD prior to signature and will be one of many factors used by DOE to assure protection of human health and the environment.

As DOE acknowledges, waste acceptance criteria are a factor used to protect human health and the environment. Given the humid environment, shallow water table, steep slopes, and rapid groundwater flow velocities in Oak Ridge, appropriate limits on waste acceptance are the most feasible way to limit future releases of contaminants to the environment from a landfill located in Bear Creek Valley. Unfortunately, neither the Proposed Plan nor the administrative record provide reliable information concerning what limits might be placed on waste acceptance at the proposed facility.

In fact, DOE does not even suggest strategies for the development and implementation of waste acceptance limits in the Proposed Plan. A review of the administrative record reveals that waste acceptance criteria for a new disposal facility were originally discussed in a 2011 Focused Feasibility Study comparison analysis with the EMWMF WAC for sites near Highway 95. In succeeding drafts of *The Remedial Investigation/Feasibility Study for Comprehensive Environmental Response, Compensation, and Liability Act Oak Ridge Reservation Waste Disposal, Oak Ridge Tennessee*, the final (D5) draft of which is referenced in this Proposed Plan, it is evident that DOE has continued to use the same approach taken for EMWMF WAC development.

The results are, predictably, no more defensible than those for the EMWMF analytic WAC discussed in a previous comment. For example, the carcinogenic risk would limit concentrations of the uranium 235 isotope to about 65,000 pico-Curies per gram (pCi/g) per the first draft, about 95,000 pCi/g per the third draft, and about 3000 pCi/g per the fourth draft. These are all higher than the EMWMF analytic WAC of 1500 pCi/g, which was considered to be unacceptably high by regulators, resulting in an administrative WAC of about 1000 pCi/g for uranium isotopes at EMWMF. The risk due to chemical toxicity gave a calculated limit for the uranium concentration of about 400,000 mg/kg in the first draft, about 100,000 mg/kg in the third draft, and less than 100 mg/kg in the fourth draft. Risk calculations frequently resulted in a range of two to four orders of magnitude in the preliminary WAC published in the various drafts, leaving the public with no idea what amounts of hazardous and radioactive constituents DOE considers to be appropriate for onsite disposal.

These preliminary WAC proposals would allow up to 40 percent by weight of the waste to be uranium. This could result in up to about a million metric tons of uranium in a 2-million-cubic-yard facility filled with waste having the density of soils or demolition rubble. This is not only far more uranium than is present in sources of future remediation waste on the Oak Ridge Reservation, but represents about one third of all uranium that has been mined worldwide to date. Clearly the risk modeling is disconnected from reality and could hardly be called “conservative” when the models conclude that such large quantities of uranium could be buried in a shallow land disposal facility without creating a future risk to human health and the environment.

Comment 65.14: Page 13. A process – to be reviewed and approved by DOE, EPA, and TDEC that ensures the wastes generated by CERCLA response action projects meets the EMDF WAC – will be developed before operation of the facility begins.

As stated in the comments above, the Proposed Plan discusses the EMWMF WAC. The Plan then assures the reader that a WAC will be developed for EMDF prior to opening the facility to receive wastes. As noted in the previous comment, review of the administrative record reveals that “preliminary” WAC were developed for the D1, D3, and D4 drafts of the RI/FS, assuming a site in East Bear Creek Valley adjacent to EMWMF, and the results do little to convince the reader that DOE will establish protective limits on waste acceptance. Although these “preliminary” WAC differ significantly between drafts of the RI/FS, primarily because of differences in the assumed location of the point of compliance to ensure protection of

groundwater, the same suite of models and many key assumptions were retained from the development of the EMWMF analytic WAC and were used in all subsequent WAC development efforts.

Given this history, it seems probable that DOE will rely on many of these same models and assumptions to develop WAC for EMDF. Given some of the absurd results produced by this methodology, the validity of both the software and the assumptions used needs to be examined. The models have certain assumptions that are implicit in the way the algorithms describe the physical and chemical processes of contaminant release and transport over time. Other assumptions, such as the selection of exposure scenarios, points of exposure, and input parameters to the models are explicit. The following is a list of the more significant factors that were common to all the WAC development efforts and that appear to result in unrealistic waste acceptance limits:

(1) DOE assumes for the purposes of evaluating post-closure risk to human health and the environment that the only future mechanism for contaminants to be released from the facility, or for humans to be exposed to hazardous and radioactive substances disposed in the facility, to be through transport in water that migrates through the facility and the liner. While this is perhaps the most likely scenario for release of soluble substances, this will not necessarily be the case for chemicals and isotopes with low solubility. Releases through erosion followed by sediment transport or dispersion in the atmosphere and intruder scenarios should also be evaluated, even if they are only deemed to be realistic in the distant future. Likewise, undetected cap failure or lack of timely maintenance leading to bath tubbing and leachate outbreaks through berms is possible. Use of a single scenario for future contaminant release results in the conclusion that no risk will ever be posed by filling the entire facility with highly concentrated hazardous and radioactive substances, so long as they have very low solubility.

(2) Infiltration rates through the facility were assumed to be limited to one centimeter per year for one thousand years post-closure. This may be achievable, but it links the waste acceptance criteria to long-term performance of the cap and berms, and implies a very long-term commitment to monitoring performance as well as to maintenance of the cap and berms. DOE has not offered a plan as to how one would establish through monitoring that infiltration rates remain less than or equal to the assumed value over such time periods. It would seem more prudent to assume that infiltration rates return more quickly to values that approximate the natural recharge rates in Bear Creek Valley, which are roughly an order of magnitude greater than one centimeter. Wastes that could not be left in place safely as the site returns to natural conditions would then be shipped off-site to facilities in arid regions that would require much less monitoring of performance and would be much less costly to maintain.

(3) Release rates of contaminants from the waste were calculated using the assumption of equilibrium partitioning between the waste and infiltrating water. While this assumption simplifies the calculation of release rates, it may lead to quite unrealistic values of contaminant concentrations in leachate. In general, the equilibrium assumption results in higher initial concentrations of contaminants in leachate than would be anticipated if the release of contaminants from the waste were modeled more using more realistic chemical and physical processes. This, in turn, would result in a higher calculated risk to groundwater resources. In fact, for some contaminants of concern that were monitored in leachate at EMWMF, measured concentrations would seem to be significantly and consistently less than those that would have been predicted from assuming equilibrium between the waste and water.

The partition coefficients used were generally taken to be representative of equilibrium between clay-rich soils and water. Because more than half of the waste matrix is expected to consist of demolition debris, including some equipment as well as large quantities of concrete rubble and structural steel, these partition coefficients may not be appropriate. For certain key contaminants that will be present in much of the Y-12 demolition waste, including uranium and mercury, the release rate from demolition debris is likely to be significantly higher than that from a clay-like waste form. Thus the use of an equilibrium model to describe

partitioning from soil-like waste into the fluid phase may lead to either values in leachate that are unrealistically high or low, resulting in some of the proposed EMDF WAC being unnecessarily stringent while WAC for other contaminants will not be protective.

Because of the abundant data available from monitoring of landfill wastewater at EMWMF, DOE had an opportunity to test the equilibrium model against actual measured values, and to adjust the model or replace it with another, such as a mass transfer limited approach to contaminant release. While the contaminant inventory of waste disposed at the EMWMF has not, unfortunately, been adequate to use for derivation of release rates for many isotopes and hazardous chemicals, it would seem to be adequate to give valuable bounding information concerning the release rates of many problematic contaminants, including uranium, from both soil-like waste and debris. The fact that DOE did not to use these data to ground their assumptions in reality raises doubts concerning DOE's ability or commitment to accurately model facility performance.

(4) The travel time through the vadose zone was computed using an overly simple approach. The Hydrologic Evaluation of Landfill Performance (HELP) model was used in some cases to inform the parameterization of the calculations, but the actual computation of travel time treated the liner system, constructed buffer, and underlying residuum as a single saturated (or nearly so) and homogeneous medium. All effects due to geometry, those resulting from pooling on the low end of the sloping liner or those from the discrete nature of failures in the liner system, were completely ignored. Mechanical dispersion was ignored, and solutes were assumed to be instantaneously adsorbed throughout the vadose zone. These assumptions all contribute to underestimation of initial breakthrough times for contaminants reaching the water table by at least an order of magnitude, and perhaps several orders of magnitude. For isotopes with relatively short half-lives (decades) and innocuous daughters, this may result in the model showing that all the contaminant is gone before it can reach the water table, whereas a more realistic travel time would result in some of the contaminant migrating into groundwater before it had all decayed. Similarly, the risk of hazardous chemicals that degrade over a few decades under environmental conditions might be underestimated. Even for isotopes with long half-lives or refractory hazardous chemicals, like mercury, the time frame for migration to groundwater using the simplified modeling approach taken by DOE might be so long (millennia) that it would be argued that any future risk is irrelevant and waste with high concentrations of the contaminant can be disposed in the facility and pose no problem. A more realistic travel time might reveal earlier risks to water resources or human health.

(5) DOE assumes that transport in groundwater can be modeled by one-dimensional advection and dispersion through porous material with equilibrium partitioning onto the solid matrix and average velocities obtained from porous media flow models such as MODFLOW/MODPATH. Several tracer tests have been performed on the Oak Ridge Reservation, including some in Bear Creek Valley and similar rocks in Melton Valley. The tests results differ, mainly depending on whether they were conducted in predominantly clastic or carbonate lithology and whether they were forced gradient or natural gradient tests, but they all (with a single exception) show rapid first arrival times for tracer. In particular, the models for the EMWMF RI/FS and EMDF RI/FS drafts predicted travel times for conservative solutes of decades over a flowpath travelled by a tracer in one to two days. Along these rapid flowpaths, contaminant retardation due to partitioning onto solids is expected to be minimal, but the model would predict travel times of millennia for solutes that are highly adsorbed on minerals. DOE has abundant results available to use for checking, parameterizing, and potentially modifying the groundwater transport model, but has so far failed to do so. This suggests questionable competence or commitment on the part of DOE and their contractors to develop a protective WAC for EMDF.

Comment 65.15: Page 13. Wastewater Management. The operation of the onsite disposal alternative at the Central Bear Creek Valley Site 7c will generate wastewaters in the form of leachate and other

landfill wastewater (waters that come into contact with the waste) that will likely require treatment prior discharge into surface water.

DOE's operation at EMWMF has been plagued by excessive generation of wastewater. To facilitate ease of operation and rapid disposal of large quantities of demolition debris, DOE has sometimes allowed the working face of the landfill to fill one or more of the cells. Best management practices to separate "clean" stormwater that had no contact with the waste from leachate and contaminated stormwater were implemented only after a decade of operations. In general, DOE prioritized rapid disposal and ignored waste management rules and guidance that direct waste management operations to minimize wastewater generation. In 2002, the facility actually flooded, with wastewater washing over a berm and entering Bear Creek. During the 2005 time frame, concentrations of strontium 90 discharged from EMWMF to Bear Creek, a stream which loses flow directly to groundwater, were two orders of magnitude higher than the maximum contaminant level for strontium 90 stipulated by EPA. While wastewater management at EMWMF has significantly improved over the past decade, this is almost certainly due to regulatory pressure rather than a renewed DOE commitment to honor the spirit of the antidegradation statements in the Clean Water Act. DOE should make more effort to minimize wastewater generation at a future facility.

Comment 65.16: Page 13. Landfill wastewater from EMDF would be staged and sampled. If sampling results indicate that water quality complies with the RAOs and ARARs (e.g., CERCLA discharge limits) to be agreed to by EPA, DOE, and TDEC, then the water would be directly discharged without treatment to Bear Creek.

Based on experience at EMWMF, CERCLA does not provide a clear way to determine wastewater discharge limits from a waste disposal facility. At EMWMF, no wastewater regulations were incorporated as ARARs into the Record of Decision. After nearly two decades of operation during which landfill wastewater has been discharged into a small tributary of Bear Creek, there is still disagreement between DOE and the regulatory agencies concerning numerical discharge limits and the point of compliance where the limits should be applied. Of the contaminants of concern present in EMWMF waste, certain hazardous chemicals, chiefly pesticides, and some fission products which are mobile in water, may arguably have "CERCLA discharge limits" imposed to protect human health and the environment that are on the same order as practical detection limits, complicating matters further. It seems probable that the EMWMF will close without the issue of discharge limits having been resolved, and without a modification of the ROD to address the legal status of wastewater discharges that occurred over the life of the facility.

To avoid a similar impasse at a new disposal facility, the FFA parties might opt for technology-based standards rather than numerical limits for a variety of contaminants of concern (COCs). This would require that all wastewater be treated rather than staged and tested for particular COCs prior to treatment or release, as described above. This approach would incentivize DOE to minimize wastewater generation and would be consistent with the statewide requirement that wastewater be treated at all municipal and industrial landfills.

Comment 65.17: Page 13. The Administrative Record for the management and discharge of this wastewater is not yet complete, and the evaluation of alternatives to address wastewater management in a D2 Focused Feasibility Study is currently under dispute between the Agencies. The ROD will describe CERCLA and NCP-compliant discharge requirements for wastewaters from the EMDF.

CERCLA regulations were intended to expedite clean-up of hazardous substances that pose a threat to human health and the environment. CERCLA was not designed to provide a regulatory basis for either disposal of waste or discharge of wastewater. There is thus little guidance available for how to develop "CERCLA discharge limits," leading to much opportunity for dispute among the FFA parties and the possibility that discharge limits will be less protective than those at a facility permitted for disposal of

hazardous and radioactive waste. The Focused Feasibility Study (FFS) dispute should be resolved and the EMWMF ROD should be amended to include ARARs for wastewater management prior to submission of the EMDF ROD to regulators.

Comment 65.18: Page 14 Key ARARs.

The list of ARARs has varied from one draft of the RI/FS to the next. ARARs for wastewater management at the proposed facility as well as for EMWMF are in the Focused Feasibility Study discussed above rather than in the EMDF RI/FS. The dispute on the FFS must be resolved before a complete set of ARARs can be established for an onsite disposal alternative.

Comment 65.19: Page 14. Action-specific ARARs affect how EMDF will be designed and operated. Key aspects of the RCRA, TSCA, and state radioactive waste regulations are used to determine how to ensure long-term protectiveness of EMDF, both through the design and during operations and closure.

Regulations that prescribe design and operational requirements for a landfill are typically understood to be for ensuring the short-term effectiveness of waste containment. Rules that are specifically aimed at ensuring long-term effectiveness of land disposal of waste are those that stipulate geologic and hydrologic requirements for the site. Siting requirements and guidance for land disposal units of radioactive, hazardous, and toxic waste have much in common. They generally require or express a strong preference for sites that have low topographic relief and other characteristics that minimize erosion. They express a preference for sites that can be readily monitored and will not be altered by demographic changes or human activities nearby. Sites with a shallow water table are undesirable. Streams, floodplains, wetlands, and groundwater recharge and discharge areas should be avoided.

Despite the obvious shortcomings of sites on the Oak Ridge Reservation, DOE has not fully acknowledged in this Proposed Plan or in the administrative record that locations in Bear Creek Valley and elsewhere on the Oak Ridge Reservation are inadequate when evaluated against standards for land disposal units. While DOE asserts that robust landfill design will lead to effective long-term isolation of radioactive and hazardous constituents in the waste, any design sufficient to compensate for the intrinsic deficiencies of Oak Ridge sites would be expected to raise disposal costs to levels that would not be competitive with cost for disposal at offsite facilities. The design for the EMWMF liner and berms met the minimum requirements for a hazardous waste landfill, but had no additional protective features. Given that a drain was constructed under the landfill to lower the water table and remove groundwater that formerly discharged within the facility footprint and that liner penetrations rather than sumps were used to remove leachate from the facility, it could be argued that EMWMF as currently constructed does not actually meet the design standards intended for hazardous waste landfills.

Comment 65.20: Page 14. TSCA requires that there be no hydraulic connection between the site and standing or flowing surface water and that the bottom of the landfill liner system or natural in-place soil barrier of a chemical waste landfill be at least 50 feet above the historical high water table (40 CFR 761.75[b][3]). Construction of a disposal facility anywhere in Bear Creek Valley would not meet this requirement. A TSCA waiver from this requirement will be required under that statute for all of the onsite alternatives.

This discussion of waivers gives the impression that locations in Bear Creek Valley all have such similar characteristics with respect to proximity to surface water and groundwater that they cannot be differentiated on this basis. In fact, the necessity for a waiver and the degree to which such a waiver can be justified at the various locations depends on the landfill footprint as well as the location. In the administrative record, DOE argues that regulatory waivers or exemptions should be granted based on the existence of an engineered liner and a buffer, conflating again those features that primarily contribute to effective short-term isolation of waste constituents with those that are primarily effective over longer times.

Comment 65.21: Page 14. A state radioactive waste disposal rule (TDEC 0400-20-11-.17[1][h]) requires that the hydrogeologic unit used for disposal shall not discharge groundwater to the surface within the disposal site. At each alternative location in Bear Creek Valley, groundwater discharges to the surface within the proposed disposal site and will not meet this requirement.

Here DOE again gives the impression that all sites in Bear Creek Valley are equal for the purposes of meeting TDEC radioactive waste disposal rules. Although none of the locations would likely meet all TDEC requirements for siting a radioactive waste landfill (these are identical to the requirements of the Nuclear Regulatory Commission), the ability to meet TDEC rules varies significantly from one location to the next. For example, TDEC comments on D3 draft of the RI/FS concerning the location proposed in East Bear Creek (see Figure 4 of this Proposed Plan) make a convincing argument that only two or three of ten specific siting requirements listed in TDEC 0400-20-11-.17[1] would be met. For the footprint that DOE proposes in Central Bear Creek Valley, it would seem that perhaps only two or three of the ten requirements would not be met. With a smaller footprint in this or some other optimal location, perhaps only one or two TDEC siting requirements would not be met.

TDEC 0400-20-11-.17[1](b) requires that the site be capable of being characterized, modeled, analyzed, and monitored. DOE does not discuss this requirement in the Proposed Plan. However, TDEC comments on all RI/FS drafts provide numerous arguments that the site cannot be modeled, or at least that two predictions critical to landfill performance cannot accurately be made through groundwater modeling. These are (1) elevation of the seasonal high water table and (2) the velocity with which solutes will transport in groundwater. There have been numerous attempts to model groundwater in Bear Creek Valley and in the similar geologic setting of Melton Valley that have under-predicted both the seasonal high water table as well as first arrival times of tracers and real contaminants. While reasons for the inadequacies of modeling transient flow and contaminant transport in fractured rocks are now fairly well understood, models that can correctly make predictions useful for landfill design and risk assessment in such hydrogeologic settings are still not available. It would seem that TDEC 0400-20-11-.17[1](b) would require a waiver anywhere in East Tennessee. Such a waiver might be justified, but not without sufficient data and calculations to place reasonable bounds on parameters needed for landfill design and performance assessment.

Comment 65.22: Page 16. Volume Reduction.

For the purposes of computing clean fill requirements for construction debris, DOE uses a fill/debris ratio of 2.26. This value was taken from a 2004 capacity assurance report for EMWMF. Since the compaction ratio for debris is assumed to be 2.01, the net result is that construction debris after compaction and

stabilization with fill occupies about ten percent more volume than the waste as generated. One would assume that good waste placement and compaction practices at the landfill could surely lower the fill requirement to no more than that necessary to compensate for the void reduction during compaction. The 2004 fill/debris ratio should be updated based on more recent data from EMWMF, which has implemented practices to reduce the use of clean fill over the last decade. In addition, the assumed fill ratio for debris should be validated against that at other facilities using waste minimization strategies and size reduction technologies that might be applicable at the proposed landfill.

The evaluation of the feasibility of size reduction techniques was also carried out assuming that the final waste form for equipment and heavy structural steel was equivalent to construction debris, and that fill requirements would be identical to that given in the 2004 report. It seems much more likely that if material were properly size-reduced, this fill ratio could be significantly lowered. This assumption of a generous fill requirement, compounded with the 25% uncertainty added to the total facility capacity, accounts for most of the difference between the estimated 1.5 million cubic yard as-generated waste volume and the 2.2 million cubic yard proposed facility. Assuming good disposal practices at the landfill, the lower number of 1.5 million cubic yards rather than the proposed 2.2 million cubic yard capacity would seem to provide a reasonable upper bound for the size of a facility that could accommodate future waste disposal needs in Oak Ridge.

Comment 65.23: Page 17. All remediation alternatives must be evaluated against the nine CERCLA evaluation criteria. The first two criteria (overall protection of human health and the environment and compliance with ARARs) are threshold criteria and must be met by any alternative considered for selection in the ROD.

As pointed out in numerous previous comments, the administrative record that supports alternative evaluation is inadequate to demonstrate that CERCLA threshold criteria are likely to be met for any but the offsite alternative.

Comment 65.24: Page 20. STATE ACCEPTANCE

This section makes it clear that the State of Tennessee cannot determine that the preferred alternative will meet CERCLA threshold criteria as described in the previous comment. Given the evident deficiencies in the administrative record that supports this Proposed Plan, it should not have been issued by DOE at this time. Given the concerns expressed by the State, TDEC's agreement to settle a dispute with DOE over issuance of the Plan in 2017 now seems premature.

Comment 65.25: Page 23. The DOE believes that the Central Bear Creek Valley site can be used for construction of a fully protective disposal facility of sufficient size to support completion of planned Oak Ridge Reservation cleanup activities. DOE believes site characterization activities completed to date indicate that with proper site development and facility design, the proposed facility can safely isolate disposed wastes from the environment.

A statement of belief on the part of DOE would carry more weight if it were supported by a consistent, reliable technical evaluation. The various versions of the RI/FS and other supporting documents do not provide the basis for such an evaluation. Approximately twenty years ago, DOE expressed a similar belief with regard to EMWMF, but failed to:

- (1) collect sufficient data on site geology and hydrology to permit optimum design of the landfill,
- (2) build a facility that could meet the regulatory siting requirements in the Record of Decision that authorized its construction,

- (3) collect sufficient usable background water quality data to develop an adequate groundwater monitoring program,
- (4) anticipate wastewater management needs,
- (5) develop and implement credible waste acceptance limits,
- (6) optimize use of facility capacity by waste minimization and volume reduction.

Why should the public accept the notion that DOE's beliefs are grounded in reality? See Attachment 1 for additional details concerning problems at EMWMF, and on lessons learned with that disposal facility that should be incorporated into plans for a future on-site landfill for CERCLA waste.

Comment 65.26: Page 23. DOE agrees with the State that remediation of mercury residuals remaining at the Y-12 site is a priority for the Oak Ridge cleanup program. While the vast majority of the mercury retrieved during site remediation will be isolated and stored for off-site disposal, some residual levels of mercury associated with building rubble, soils and drained equipment are proposed for onsite disposal.

To date, DOE has not offered even a general plan for how they might isolate the vast majority of mercury remaining in building structures prior to or during demolition. DOE has stated that less than about 150,000 cubic yards of material generated by demolition of four WEMA buildings at Y-12 will be contaminated with mercury, but has given no indication of the volume of material that might require treatment under the 40 CFR 268.40 treatment standards for high mercury content wastes. DOE has not offered a plan for segregation of these high mercury content wastes (> 260 milligrams/kilogram mercury). Mercury in elemental form is present in WEMA buildings, and estimates of mercury spills in buildings range in the hundreds of kilograms. A Union Carbide task force in 1983 provided a "very rough guess" of 60,000 pounds of mercury lost to building structure. This quantity could contaminate over 50,000 cubic yards of concrete at concentrations above the 260 milligram per kilogram limit of the standard. Such waste would require thermal treatment before it could be disposed at a landfill.

Comment 65.27: Page 23. It is important to recognize this contamination is currently proximate to ground and surface water resources, and in a largely uncontrolled setting. The objective of the onsite disposal proposal is to remove contamination from this setting and place it in an engineered facility that eliminates ongoing environmental impacts.

While this is certainly true, the environmental impact of moving debris that is lightly contaminated with mercury to an engineered disposal facility would be minimal compared with the impact of isolation, segregation, and removal of elemental mercury or other forms of high mercury content wastes. The key to reducing mercury impacts from WEMA is to deploy a strategy that allows for identification of mercury hot spots during characterization, isolates these hot spots so that the mercury is not mixed into clean material during the demolition process, and minimizes releases to soil and water during demolition and waste removal. Given the difficulty of these tasks, it is not surprising that DOE has provided few details as to how they might be achieved, but they are nevertheless much more critical to protection of human health and the environment from mercury impacts than authorization of another on-site waste disposal facility.

Comment 65.28: Page 23. Use of underdrains at disposal facilities is an engineering approach employed by multiple disposal facilities in the East Tennessee region as a means of enhancing landfill stability and performance.

Based on my knowledge of landfills in East Tennessee, many are constructed on ridges formed in the Knox formation. While this is not ideal, as the Knox formation is known to be karstic, there would be few problems with proximity to surface streams in this setting. TDEC refuted this assertion at a meeting sponsored by the Sierra Club in Oak Ridge, providing evidence that there was perhaps only one other drain that was comparable to the one under EMWMF at landfills of all types throughout the entire state.

Comment 65.29: Page 26. DOE will be responsible for maintaining, reporting, and enforcing, as necessary, land use controls. DOE will retain ultimate responsibility for the integrity and protectiveness of the remedy.

The long-term burden of enforcing land-use controls in perpetuity does not seem to enter the cost –benefit analysis that DOE has made between onsite and offsite alternatives. The ORR is in a populated area, and DOE has had difficulty preventing intrusion of the public into secure areas. The population around the ORR is projected to grow faster than the population around the offsite facilities identified in this Proposed Plan. TDEC (NRC) siting criteria include Rule 040020-11-.17(1)(c), which states;

Within the region where the facility is to be located, a disposal site should be selected so that projected population growth and future developments are not likely to affect the ability of the disposal facility to meet performance objectives.

One of the performance objectives in TDEC rules is protection of individuals from inadvertent intrusion. DOE has argued that this performance objective is not relevant and appropriate and should not be considered an ARAR for the purposes of this CERCLA action, because they will control land use. However, land-use controls would almost certainly be less costly and more effective at the offsite locations, which are in arid areas more distant from population centers.

Comment 66: Comment from Myron Iwanski

I appreciate the progress that DOE has made in cleaning up its properties in Oak Ridge. However the proposed landfill has some long term consequences for our community and believe there are several issues that need to be resolved before the project is approved.

I served on Anderson County Commission, representing Oak Ridge for 24 years, including time as County Mayor and as County Trustee. In November, 2015 County Commission unanimously approved the attached resolution expressing two areas of concern that have not been fully addressed:

1. The need to resolve the issues raised by the City of Oak Ridge, EPA and the State of Tennessee.
2. The need to consider local impact funding to offset the financial and environmental burdens this project will place on the City of Oak Ridge and its two Counties.

I would like to see the issues satisfactorily addressed.

Anderson County, Tennessee
Board of Commissioners
RESOLUTION NO. 15-11-563

EXHIBIT
C

A RESOLUTION REQUESTING THE DEPARTMENT OF ENERGY TO FURTHER RESEARCH AND PROVIDE ADDITIONAL COMMUNITY AND ENVIRONMENTAL INFORMATION REGARDING ITS PROPOSAL TO BUILD A NEW LANDFILL OR EXPANSION OF THE EXISTING FACILITY TO ACCOMMODATE RADIOACTIVE AND HAZARDOUS WASTE GENERATED BY ONGOING REMEDIATION EFFORTS.

WHEREAS, the Department of Energy is considering expanding its current disposal site or possibly the construction of a new low-level nuclear waste landfill to accommodate radioactive and hazardous waste generated by continued clean-up efforts on the reservation; and

WHEREAS, the proposed DOE Environmental Management Disposal Facility has raised several community concerns; and

WHEREAS a number of these concerns were identified in the Ferguson Group's study report entitled, Community Impact Assessment of the U.S. DOE Proposed Environmental Management Disposal Facility in Oak Ridge, Tennessee; and

WHEREAS the USEPA and Tennessee Department of Environment and Conservation are reviewing the DOE proposal and have identified concerns regarding the proposed sites; and

WHEREAS, many concerns have been identified that need additional research to satisfy growing community sentiments.

NOW, THEREFORE, BE IT RESOLVED, by the Anderson County Board of Commissioners meeting in regular session this 16th day of November 2015 that we respectfully request the Department of Energy to address and further research environmental and community impact concerns with the proposed Environmental Management Disposal Facility in Oak Ridge and report its findings and corrective measures to the community and local governments.

BE IT FURTHER RESOLVED, that we respectfully request the Department of Energy to consider local impact funding to offset the financial and environmental burdens imposed on the City of Oak Ridge and Anderson County. We further authorize the County Clerk to distribute a copy of this Resolution to the Department of Energy, members of the United States Congressional delegation and members of the Tennessee General Assembly representing the interests of Anderson County and Oak Ridge.


Steve Emert, Chairman

Terry Frank, County Mayor

ATTEST:




Jeff Cole, County Clerk

Comment 67: Comment from Axel C. Ringe, Tennessee Chapter Sierra Club

Thank you for the opportunity to comment on the Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act Waste (the Proposed Plan)¹ on behalf of the 140,000 members and supporters of the Tennessee Chapter of the Sierra Club.

The Sierra Club does not support the preferred alternative for establishment of a new hazardous/toxic/radioactive waste disposal facility (EMDF) on the Oak Ridge Reservation (the Onsite Disposal Alternative) for the following reasons:

1. DOE has not provided sufficient information on some significant aspects of the analysis of alternatives to allow informed comment by the public. Accordingly, we ask that the public comment period be extended to allow time for DOE to provide information on the following topics and give the public time to review and comment on the new information:
 - a) Details of waste acceptance criteria and requirements for waste characterization prior to acceptance.
 - b) Full details of the comparative analysis of costs for the Onsite and Offsite alternatives.
 - c) The specific waivers of regulatory requirements that would be requested for each of the Onsite options and the rationale for each requested waiver.
 - d) Treatment technologies that have been evaluated or are planned to (1) reduce waste volume in the disposal facility and (2) immobilize any mercury waste prior to disposal.
2. DOE's preferred site in Central Bear Creek Valley (CBCV) and the West Bear Creek Valley (WBCV) option would add to the inventory of contaminated land on the Oak Ridge Reservation by putting waste in a clean area that is a greenfield.
3. We believe that DOE would not need to be seeking a new landfill at this time if the existing EMWMF had been managed properly. Specifically, if waste had been characterized before disposal to determine the best disposal path, much less waste would have been placed there.
4. Based on available characterization data (noting that there is not yet enough hydrologic characterization of the CBCV site to support a decision), none of the candidate sites is suitable hydrologically. The presence of abundant surface and ground water would require significant engineering effort to manage, both through the operating period and after closure, relying on diversion structures, gravel drains, pipes, liners, and caps, that can be expected to fail in the long term, with life expectancy only of decades.
5. Proximity to residential areas would exclude these sites from consideration if the EMDF were being sited as a new radioactive waste disposal facility.
6. The proposal to establish a landfill on a clean site and call it a "remedial action" is a misapplication of the CERCLA statute. This proposed landfill could not be built if it had to comply with the normal environmental regulations for landfills – even for ordinary municipal landfills. The landfill only becomes possible if DOE can use the special legal rules for CERCLA remedial actions to obtain exemptions from procedural requirements and to seek waivers of some substantive requirements. The special legal provisions of CERCLA were intended to facilitate rapid action to remove wastes from contaminated areas, not to allow establishment of new waste sites that operate for decades without being subject to regulatory oversight.

We therefore offer the following recommendations:

1. More prescriptive rules and guidance from programs that are meant to regulate disposal of radioactive and hazardous waste should be incorporated into the CERCLA decision process.

2. Before an alternative is chosen for on-site disposal, the site to be used for the landfill and the waste to be disposed should be characterized well enough to ensure it can be designed to protect human health and the environment.
3. Credible limits on the amount and concentration of hazardous chemicals and radionuclides that can be disposed in a landfill in Oak Ridge must be established and used to determine the volume of waste that should be buried on-site.

We would support, after consideration and implementation of our recommendations above, the choice of the hybrid alternative rather than the preferred alternative put forth by DOE in this Proposed Plan. The hybrid alternative proposes that a disposal facility be located in Bear Creek Valley adjacent to the Environmental Management Waste Management Facility (EMWMF) between tributaries to Bear Creek. The hybrid alternative also provides for significant quantities of waste to be shipped offsite.

Also, we support and incorporate the comments by Sidney W. Jones, Ph.D., P.E., P.G. and AFORR by reference.

1 Att. ##, U.S. Dep't of Energy, *Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act Waste* (Sept. 2018) [hereinafter "Proposed Plan"]; Att. ##, U.S. Dep't of Energy, *EMDF Public Comment Period Ends*, Dec. 10, 2018, <https://www.energy.gov/oreo/events/emdf-public-comment-period-ends>.

Comment 68: Comment from Crystal Sherline, Ph.D.

I am a resident of Oak Ridge and I oppose the on-site disposal at Y-12.

I chose to make Oak Ridge my home in 2007, after my husband defended his dissertation, and decided to say [sic] after our divorce. We have had one child graduate from ORHS and the last is slated to do so 2021. The point is, we came to Oak Ridge for the sense of community, schools, and ease of commute to ORNL and OSTI, where he and I work, respectively. If talks concerning a disposal [sic] in Oak Ridge were happening in 2007, we would not have moved into the city.

The city of Oak Ridge already has problems recruiting its workers to live in Oak Ridge. We are diverse community of blue and white collar laborers. I appreciate the diversity of this city. I have been an advocate for others considering moving to the area, rather than West Knox, Farragut, Hardin Valley. I want to continue to advocate for a great life in Oak Ridge. With an on-site disposal at Y-12, I would feel uncomfortable doing so.

The fact is, there are plenty of places already set up to take the materials. Dare I say Yucca Mountain?

I would like my voice heard. I am part of the silent majority but I am not complacent. I am busy working 40 hours/week for DOE, teaching a class at UTK and raising teenagers. There are many like me, in Oak Ridge, that do not have spare time, as our lives belong to our children. So, I am here fighting for mine. My son, a Marine, would like to return to Oak Ridge after his deployment, but if this site goes through, I will discourage him from returning and raising a family here, as I would discourage any young families.

Please consider what this would do to my town, as I am not sure it is yours.

Comment 69: Comment from Richard Burroughs

I live in Oak Ridge and am in support of the waste disposal landfill to be located on-site at the Y-12 facility. The arguments presented by local government officials, their contractors and advisory boards, against this landfill do not dissuade me from believing that the proposed plan as presented is the best solution for moving forward with the remediation and reutilization of the facility.

Comment 70: Comment from Steven Sicular

The proposed DOE landfill in Oak Ridge is an extremely bad idea. Why does the DOE wish to make a bad problem even worse? Oak Ridge has endured seven decades of toxic abuse. Shifting one landfill - which in reality is what Y-12 already is - to another undisturbed and environmentally fragile parcel is absolutely ludicrous.

Knowing there are other disposal sites, in the western US - already in existence - away from human populations, makes much better sense.

Comment 71: Comment from Sandra K. Goss

I write on behalf of Tennessee Citizens for Wilderness Planning, an Oak Ridge-based environmental advocacy organization, about the proposed hazardous waste landfill on the Oak Ridge Reservation.

TCWP has a long time interest in the Oak Ridge Reservation. In the 50+ year history of the organization, many TCWP members (including its founders) have worked at labs and offices on the reservation. Much of the reservation is unspoiled and represents an important part of East Tennessee's dwindling stock of large habitat acreage.

TCWP has sponsored several informational programs about the history, programs, flora and fauna of the reservation and educational outings on Freels Bend, and advocated for conservation management of the Black Oak Ridge Conservation Easement.

We advocate the use of brown fields in the reservation for the proposed waste dump. Given that the proposed sites are on unspoiled land, and that very little information has been made available to the public, we urge that more information be provided about the proposed sites.

Further, mitigation needs to be provided if the proposed landfill is sited on the Oak Ridge Reservation. We strongly urge development and execution of a holistic planning process for the reservation. Every other Manhattan Project site has had such a plan. Tennesseans deserve to have this natural resource used as efficiently as possible. A reservation-wide planning process is an important step toward wise land usage on the reservation.

The reservation has several special, unspoiled areas that are worthy of permanent protection from development and despoliation. It is hoped that a reservation-wide planning process would identify these areas and enable their conservation.

Comment 72: Comment from Ebony Capshaw

My name is Ebony M. Capshaw and I am a resident of Oak Ridge in the Scarboro community. I do not feel confident with the proposed site or information provided. There is no guarantee that the liners will work and not contaminate the environment. I believe we should continue to send contaminated waste to off-site facilities. There have been no hazardous accidents reported in concern with the transport of waste from Oak Ridge by rail cars. I think protecting the surrounding communities and future generations from potential exposure to hazardous wastes is more precious than money. How many of the staff involved with this project live in close proximity to the proposed sites for EDMF? Would you want to expose your loved ones to hazardous wastes without a 100% guarantee that no exposure would occur? I've reviewed the EDMF [sic] fact sheet by the TN Department of Environment and Conservation, presentation posters, and sat in public meetings over the past year. I am opposed to this facility being placed in my backyard. I

strongly support sending waste to off-site facilities built in better conditions that prevent contaminating water tables and viable communities in the Oak Ridge, Tennessee.

Comment 73: Comment from Ellen Faby

I am opposed to the proposed Oak Ridge Hazardous Waste Landfill, the EMDF. I have looked at the issues raised by TDEC, local organizations involved with protecting the environment for Oak Ridge citizens, and individual scientists who have analyzed the proposal, and based on their analyses I am opposed.

Among the many negative impacts of the landfill is the likelihood that our watershed could be contaminated with mercury or other hazardous materials. The proposed EMDF will not comply with environmental regulations that protect people and the history of DOE usage of the existing hazardous waste landfill does not inspire confidence that this proposed landfill will be operated safely for the very long timeframe that the materials it would store would be hazardous.

Other storage options outside of the Oak Ridge area are available and are more suitable for storing this type of hazardous waste; one or more of these should be utilized. The work performed in Oak Ridge at the DOE facilities has benefited the entire United States and the citizens of Oak Ridge and the surrounding areas should not bear the entire burden of the environmental and economic consequences of hazardous waste generated as a result of this work.

Comment 74: Comment from Marian Varner

I would like to give my comments regarding the proposed landfill in the DOE reservation in Oak Ridge, TN. As a long-time Oak Ridge resident, I understand that various radioactive wastes that have been produced on DOE land must be cleaned up and disposed of. However, the proposed landfill does not seem to be a good longterm [sic] solution to this problem. As I understand it, the groundwater in the proposed site is high enough that any containment system of reasonable cost is likely to fail at some time in the future. Residential areas are close enough that they would be affected by the contamination caused by such a failure.

I also understand that the usual environmental regulations for this landfill would be waived, by using the special rules for Superfund sites. It would be much better if the landfill would abide by the standard environmental laws, since those laws have been enacted to provide protection to nearby areas.

I hope that DOE will reconsider this project and find a new site that would be better suited for this waste.

Comment 75: Comment from Lisa Ritter

I think there's already enough contamination in Oak Ridge. I vote no landfill. Thanks

Comment 76: Comment from Chris Purdy

Yes. I agree. It keeps job's [sic] in East TN.

Response: DOE appreciates your participation in the public comment process. DOE appreciates your support for the preferred remedy.

Comment 77: Comment from Mike Hawn

I am for the landfill.

Comment 78: Comment from T. Shadden

I'm okay for a landfill.

Comment 79: Comment from Scotty Hendrickson

I am ok with the land fill.

Comment 80: Comment from Douglas McMurdy

We need the land fill for growth in O.R. We have the technology to treat mother earth eco friendly; and checks our contingency plans through our andminastrative controlls [sic]. Let build us a new cell.

Comment 81: Comment from John Asberry

We need this land-fill close to the work were [sic] doing. This keeps this waste off the publit [sic] roads.

Comment 82: Comment from Mikle Lay

Its silly to ship out an [sic] it cost money an [sic] a lot of job here locally.

Comment 83: Comment from Kim Conrad

I am for building the landfill in East Tennessee.

Comment 84: Comment from Randy Daugherty

If the landfill is enviromentally [sic] funded it only helps the community not hurt it.

Comment 85: Comment from Ben Organek

Keep's job here. Environmentaly frendly. [sic]

Comment 86: Comment from anonymous

I agree with have a new landfill. We need the work to say local. Landfill helps the community since its [sic] been working up to now. Don't change it. It's environmental funded so it's a win-win.

Comment 87: Comment from Vaughn Daniels

Yes. Landfill are needed [sic].

Comment 88: Comment from Larry Shephard

I feel that having the land fill here at Oak Ridge is just good economic sense for the local community and workers. We should not sacrifice jobs for our local people and ship our waste out of state.

Comment 89: Comment from Randall Worthington

Saves money and creates jobs. A++

Comment 90: Comment from Bobby Russell

I believe we need to build the new landfill to keep from shipping all the way across the U.S. for the cost of shipping.

Comment 91: Comment from Nathan W. Thomas

I am for a new landfill to keep government money coming in and being spent in East Tennessee.

Comment 92: Comment from Walter Hitson

I am for keeping the landfill here in Oak Ridge, TN.

Comment 93: Comment from Jeremy Wilson

It would be good if they built it here! It keeps jobs here!

Comment 94: Comment from Jesse Buchanan

I am for putting the new landfill in Oak Ridge, TN. We can keep the money in East Tennessee. More work for Tennesseans.

Comment 95: Comment from John C. Roberts

For the land field.

Comment 96: Comment from Emelia Harrison

I'm for the landfill to keep jobs here. It's not like you'll see this from public roads anyway.

Comment 97: Comment from Billy "Devin" Brackett

I support the new landfill and would think it would be good for keeping jobs here.

Comment 98: Comment from Grant Andrews

For land field.

Comment 99: Comment from Greg Doughty

You need to make sure you do your job and keep the landfill on Oak Ridge Reservation. This is jobs for our community. We don't need to support other. Build the new landfill here.

Comment 100: Comment from Robert Martin

If shipped [sic] to Nevada it will cost local jobs and hurt local areas economy, plus slow down production of D+D.

Need to know more about water treatment plan!

Comment 101: Comment from Brian Williams

I am for the new landfill because it supples [sic] jobs for local people and helps with money cost.

Comment 102: Comment from Mildred Russell

I'm for the landfill onsite at ETTP. I understand that the runoff is collected and monitored for public release. But I also feel that people at the ETTP should have the chance for employment with the landfill here on site.

Comment 103: Comment from Angela Bunch

A new landfield needs to be built and to keep jobs in the community.

Comment 104: Comment from Eddie Seeber

Yes. Keep our jobs in East TN so yes on landfill. The old one is full and it is more economic to keep it here with well trained employees.

Comment 105: Comment from Phillip Creasman

Build the new landfield here, keep jobs here, allready [sic] gov land that's just sitting here, no one wants, save taxpayers money. Transporting waste across country is hazardous, costly, and dumb when we have a place here for it.

Comment 106: Comment from Jeff Jeffers

Sounds good. More jobs for East Tennessee.

Comment 107: Comment from Suede Duncan

I am for the landfill to be built. Keep food in our famalies [sic] mouth here in east Tennessee.

Comment 108: Comment from Rose Shirks

I am for building the landfill in East Tennessee.

Comment 109: Comment from Doyte Hay

I am for the cell. I think it is better to build the cell here rather than shipping out west. That would cost a lot more to ship the debris out west. That would take money from the work force here at UCOR. Lets [sic] build the cell here and keep the savings here.

Comment 110: Comment from Kevin Will

I say yes for the landfill. It's [sic] would be keeping jobs for East Tenn.

Comment 111: Comment from Liz Marcotte

I am for having a new landfill in the Oak Ridge reservation. Experienced individuals to work it, keeps members of the community employed.

Comment 112: Comment from Eric T. Johnson

I'm against the new landfill in Tenn.

Comment 113: Comment from Rex Thompson

Bring it.

Comment 114: Comment from Randell Blalock

Keeps job's and environmental [sic] friendly.

Comment 115: Comment from anonymous

No on landfill. I live downhill from here and everybody around me that's worked up in Oakridge for DOE has died of cancer. I'll probabbly [sic] die next. The futhure [sic] away you get this stuff, the better will all be. Our famileys [sic] and our grandchildren.

Comment 116: Comment from Todd Phillips

I support EMDF. Onsite disposal is critical to timely and cost effective environmental cleanup. EMWMF has been critical to cleanup success at ETTP. This model should be used as cleanup work moves to ORNL and Y-12.

Comment 117: Comment from Carrie Wolfe

Based on my experience working at ETTP, I recognize the importance of a safe, compliant, onsite disposal facility. I am in favor of the landfill to support future cleanup work.

Comment 118: Comment from Samantha Dolynchuk

Given my work experience @ UCOR, I'm a proponent of EMDF as an onsite disposal option for future waste generated during future cleanup of DOE's Oakridge footprint.

Comment 119: Comment from Kimberly Jackson

I believe we need to keep it local. I support the landfill in Oak Ridge.

Comment 120: Comment from Cindy Humphrey

I support landfill.

Comment 121: Comment from Matthew Grizzle

I support the landfill in Oak Ridge.

Comment 122: Comment from Veronica Adkisson

I support the landfield to be in Oak Ridge Tennessee.

Comment 123: Comment from Michael Mills

I support the proposed plan based on my experience at ETP.

Comment 124: Comment from Pam Garrett

Leave the jobs here where they belong. Keep us all working.

Comment 125: Comment from Darin Davis

I support.

Comment 126: Comment from Daniel McKinney

Support.

Comment 127: Comment from Benny Noe

Taxes are high enough. Lets [sic] support the Oak Ridge landfill. Keep jobs in Oak Ridge, TN.

Comment 128: Comment from Michael Hodgson

I am in support of the new landfill due to understanding the waste stream and how the waste is segregated. The most hazardous waste is sent west.

Comment 129: Comment from Derrick Jeffers

I am for the landfill remaining in Oak Ridge.

Comment 130: Comment from Bobbie Williams

I am for the landfield to be here in Oak Ridge. Keep our jobs here.

Comment 131: Comment from Kesler Young

I support the landfill to be here in Oak Ridge.

Comment 132: Comment from Tyler Chumley

A landfill in Tennessee is great because it creates jobs and enhances cleanup at multiple sites in the area.

Comment 133: Comment from Mark Hughett

I believe the land fill should be approved. It will help create more jobs for East Tenn.

Comment 134: Comment from Shawn Wright

Keep the work local. Reduces the risk of off-site contamination and helps the local economy. Increased shipping costs will reduce the available funding for labor and will result in a reduction of work force.

Comment 135: Comment from Kasey Griffis

I support landfill in Oak Ridge.

Comment 136: Comment from Scott Davis

I am opposed to ANY more landfills in Tennessee!!

Comment 137: Comment from Travis

I support the landfill in Oak Ridge.

Comment 138: Comment from Susan Woody

I support the landfield to be here in Oak Ridge.

Comment 139: Comment from Corey Edmonds

Keep it local. I support the landfill to be in Tennessee.

Comment 140: Comment from Zachary Ward

I support the new proposed landfill here in Oak Ridge in hope of many years of more work.

Comment 141: Comment from Travis Lamb

Waste will accumulate whether its [sic] in TN or another state. The positive to keeping here is longer work for the local [sic].

Comment 142: Comment from Caleb Parrott

I support the Oak Ridge landfill. Local work and tax dollars put to good use, not wasting tax money on shipping to Nevada or elsewhere [sic].

Comment 143: Comment from Joseph Henry

For new landfill in Oak Ridge more jobs for the area.

Comment 144: Comment from Gerald Mullins

Yes I agree. Need to keep clean up going strong.

Comment 145: Comment from Mildred Russell

I support the landfill in Oak Ridge.

Comment 146: Comment from Ernie Bradshaw

I am for it. I worked @ the plants for 18 years need to keep job in East TN Oak Ridge.

Comment 147: Comment from Gabe Lowe

I think it would be best for us to have our own landfill for cost efficincey [sic] which would mean more jobs for the locals.

Comment 148: Comment from Sammy E. Hickman

I think this is good for local economy and keeping worker in this working and building growth. I have worked around the Oak Ridge Plants since 1977. Ways of disposal of waste, safety, work scope has changed. I believe this would be a safe site for disposal.

Comment 149: Comment from Scott Harrison

I'm for the new landfield. It creates jobs, saves money. I've worked in the waste field for over 20 years. We protect the envirimnt [sic] while all D&D work is going on.

Comment 150: Comment from John Harness

I am for the new landfill to keep jobs and money in the area.

Comment 151: Comment from Franklin Jones

I am for the new landfill to keep jobs and money in the area.

Comment 152: Comment from Anna Bray

I support it.

Comment 153: Comment from Justin Crouch

Keep in Oakridge.

Comment 154: Comment from Sam Matthews

I think it would be good to builded [sic] this landfill at Y-12. I [sic] will cost less money to put it here.

Comment 155: Comment from James Nuckols

I am favor [sic] of the landfill site in Oak Ridge. Economic reasons, safety concerns, environmental impacts will all be addressed and I personally feel comfortable all concerns will be addressed.

Comment 156: Comment from James Hardigree

I agree to have a new waste site in East Tennessee.

Comment 157: Comment from Jesse Alvis

I approve of proposed landfield.

Comment 158: Comment from Deandre Stinson

I think it will be a great idea because anything could happen from here to Nevada and it wouldn't be good when we can keep it homebound and keep it controlled.

Comment 159: Comment from Tom Williams

I support the landfill for the help of jobs in Oak Ridge and believe they place in the ground in a safe manner.

Comment 160: Comment from Casey Hill

I support.

Comment 161: Comment from Gary Bertram

Which is ever safer to the State of Tennessee.

Comment 162: Comment from William C. Qualls IV

Keep landfills for DOE in Tennessee. It's our waste and we and DOE know how to dispose of it properly. Off site disposal means higher costs for public and job loss for our area.

Comment 163: Comment from Adam Walden

I do think it's good to build to build a landfield. Help with jobs.

Comment 164: Comment from David Thomas

I support, due to cost, due to less chances of contamination. Between demo site and landfill.

Comment 165: Comment from Pam Duncan

I think this landfield would be an asset to this community. I have worked for DOE contractors for the past 16 yrs. and they are very concerned with our enviroment [sic]. They will take all the necessary steps to keep our enviroment [sic] clean.

Comment 166: Comment from Gregory Brown

If we don't it will take away a lot of jobs. And we been doing [sic] it this way for years.

Comment 167: Comment from Chuck Bertram

I think it is a great idea. It would open more jobs for everyone in the area.

Comment 168: Comment from Michelle Bertram

I think we should open a new local waste facility for oppurtunity [sic] of more jobs.

Comment 169: Comment from Nathaniel Bertram

I've saw the stuff thats [sic] here. I'm okay with low level stuff being disposed of here. I'd prefer it to be here to create more jobs.

Comment 170: Comment from Leonard A. Abbatiello

I would like to record my comments about the proposed EMDF Waste Burial Site which you are proposing to build here in Oak Ridge. Oak Ridge has long accepted the burden of being a nuclear waste dumping ground without effective community involvement and adequate community compensation.

I am unequivocally against any future local burdens without adequate federal financial compensation. Oak Ridge has carried special burdens for many years and it must stop!

Over the years, Oak Ridge was initially created and rose to the challenge to eliminate the national threat of Nazi tyranny. It did so without regard for those local citizens who paid the greatest price – the local residents. The City of Oak Ridge was created by “The Atomic Energy Community Act of 1955”. It is the only document that provides for the special payments; federally owned property is tax exempt, for the special burden that the presence of the AEC/DOE facilities created for our local governments. The presence of a contaminated, nuclear waste sites aura has significantly impacted our ability to attract clean industry and develop a normal tax base. Today, the DOE facilities pay a miniscule PILT based upon its value as a clean, undeveloped agricultural woodlands environment. The SNS Facility is even sales tax exempt from all purchases without any sunset provisions. You are now proposing an expanded nuclear waste burial site within the close proximity [sic] of residential homes creating an image for Oak Ridge far different than that of a clean woodlands environment. The DOE PILT should be renegotiated to pay the difference between the reality of a nuclear waste burial ground and a pristine woodlands environment capable of some type of development. There are provisions within the AECA 1955 foundation document to renegotiate the basis of the PILT payment and provide us equitable compensation while reducing DOE management costs and fostering improved community relations!

Attached you will find a July 19, 2004 letter to the then DOE Secretary of Energy, Mr. Spenser Abraham, from the then Tennessee Senators William H Frist and Lamar Alexander addressing this very issue. This letter was never answered. Expansion of our nuclear waste burial sites within Oak Ridge should not be even considered until DOE addresses the issues of past broken promises, failed self-sufficiency programs and inadequate land transfers which burden our citizens. The current DOE annual PILT payment equates to less than 1/16 of the payment any normal industry would make to our host County and City.

Propose to renegotiate the PILT under the AECA of 1955 we [sic] might consider a properly designed, sited and managed EMDF that reflects the needs of DOE and needs and responsibilities of the community. Oak Ridge citizens continue to carry an unacceptable financial burden because of the presence of the DOE facilities and their inherent characteristics. Your arguments are that it is cheaper to bury here rather than transport elsewhere, but such a comparison does not consider the image impact that a radioactive nuclear waste burial site has on marketing that community. The presence of radioactive waste impact [sic] physical health, financial, and image induced [sic] which all have inhibited normal commercial/industrial expansion here in Oak Ridge.

The DOE’s record of continued stonewalling, poor community involvement, ignoring responsible local governments and its documented failure to respond to Congressional authority are all reprehensible. I expect DOE to expand the waste burial site without valid consideration of its real impact on this community as it has done previously! But, you can do better!

Anderson County and Oak Ridge should not consider any nuclear waste burial site expansion until DOE answers the July 19, 2004 [sic] Letter of our Senators Frist and Alexander and offers a competitive PILT payment to us, the host City and County.

I believe that renegotiation of the basis of the PILT would be beneficial to both DOE and the host communities. DOE could benefit by achieving simplified internal management methods and the host communities through fair PILT revenues and improved communication channels.

JUL 21 2004 1:54PM 202 228 1264

NO. 6041 P. 2

United States Senate
WASHINGTON, DC 20510

July 19, 2004

The Honorable Spencer Abraham
Secretary
Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Mr. Secretary:

We are writing on behalf of the City of Oak Ridge and Anderson and Roane counties regarding their efforts to work with the Department of Energy to achieve financial self-sufficiency.

The Department has long pursued a national policy of helping our nation's nuclear cities achieve financial self-sufficiency. The Atomic Energy Community Act of 1955 provided special payments to our nation's nuclear cities to mitigate the special burdens created by the presence of large federal facilities that severely impacted basic infrastructure and service capabilities and withdrew significant lands from the local tax base. Various arrangements between the federal government and the nuclear cities have been tailored over the years to address the aforementioned burdens, but such efforts have fallen short in Oak Ridge. The Department's continued control of significant lands in Oak Ridge has imposed greater burdens on the remaining taxable base and discouraged economic growth and development.

In 1985, a new agreement was signed between the Department and the City of Oak Ridge and Anderson and Roane counties with the hope and expectation that financial self-sufficiency might be achieved. The 1985 agreement specifically provided for lump-sum payments and the transfer of 10,405 acres termed "self-sufficiency parcels." The communities accepted lump sum payments in exchange for a commitment from the Department to transfer land for the purposes of establishing a local tax base sufficient to provide the revenues necessary to supplant federal annual assistance payments. Today, 18 years later, many aspects of this agreement remain unrealized. The lands identified in the 1985 agreement have not been transferred to the local governments; and, accordingly, the anticipated enhanced tax base to achieve self-sufficiency has not been realized. In fact, only 23 percent of the self-sufficiency parcels have been transferred by the federal government to the City of Oak Ridge and Anderson and Roane counties.

In light of the continued difficulties experienced by these Tennessee communities, the following language was included in the Fiscal Year 2004 Energy and Water Appropriations bill.

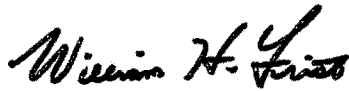
"The Committee is aware of concerns expressed by the City of Oak Ridge and Anderson and Roane counties in the State of Tennessee regarding the level of financial assistance provided by the Department of Energy. As a Manhattan Project atomic energy community, the Department has a special relationship with Oak Ridge. Although the area receives modest support from the Department as part of the Payment in Lieu of Tax program, economic development has been severely limited by extensive Federal ownership of lands, aging infrastructure, and disproportionately high local tax rates. Unfortunately, Oak Ridge has not achieved the level of self-sufficiency envisioned by the Atomic Energy Community Act of 1955. The Committee urges the Department to work with city and county officials to develop a plan to help the Oak Ridge community achieve financial self-sufficiency."

In February of this year, during the Senate Energy and Natural Resources Committee's hearing on the Department's fiscal year 2005 budget, Senator Alexander submitted a written inquiry asking how the Department planned to help the Oak Ridge community achieve financial self-sufficiency. The Department's response, received on May 4th, provided detailed information about previous efforts to help these communities achieve self sufficiency, but failed to address the critical question of how the Department would work with the city and counties to provide meaningful assistance in the future.

The Oak Ridge community believes that the land currently controlled by the Department should produce tax benefits of \$280 per acre, which is comparable to similarly sized Tennessee industrial communities. To reach this goal, we specifically request that the Department develop a viable self-sufficiency plan that may include the transfer of lands identified in the 1985 agreement that have not yet been transferred, the resumption of special assistance payments, or other proposals developed by the Department. We very much hope that the Department will produce a solution or develop a process to resolve this matter by the end of this year or early next year.

The Oak Ridge community strongly supports the Department and its contractors. Tennessee takes great pride in the contributions made by the Oak Ridge National Laboratory and the Y-12 National Security Complex and treasures its relationship with the Department. We thank you for your attention to this matter and look forward to working with you in the weeks and months ahead.

Sincerely,



William H. Frist, M.D.
Majority Leader
United States Senate



Lamar Alexander
United States Senate

Comment 171: Comment from Douglas W. Turner

These comments are supplied in response to the Proposed Plan for the Disposal of Oak Ridge Reservation CERCLA Waste dated September 2018. I strongly agree with the proposed plan to proceed with the Onsite Disposal Alternative located in Bear Creek Valley. I believe the current EMWMF has worked well to accelerate the cleanup of the ORR and eliminate deteriorating facilities and equipment that are no longer needed, and to prevent hazardous metals and chemicals from spreading in our environment. For example, the great progress in taking down the old K-25 building and other large buildings at the ETPP would not have been possible without the EMWMF, plus there are many other old DOE facilities in Oak Ridge awaiting demolition and cleanup. The design features and the waste acceptance criteria (WAC) are crucial to the proposed plan, and have worked well for the current EMWMF. Most of my professional career in

environmental cleanup was associated with working to find ways to package and ship high hazard waste like transuranics, remote-handled low level waste and spent nuclear fuel to off site disposal and storage facilities. Only the CERCLA waste that met the EMWMF WAC could be disposed there. The high cost associated with packaging and shipping building debris to off site disposal facilities rather than sending CERCLA waste that meets the WAC to an on site disposal facility slows the progress of environmental cleanup and restoration. There is only a finite amount of funding available for environmental cleanup and restoration, and the available funding must be used most efficiently. I strongly favor proceeding with the EMDF project and selecting the best site(s) in Bear Creek Valley to construct the on site disposal cells needed to continue the Oak Ridge cleanup progress. The on site disposal cell for acceptable CERCLA waste has worked effectively to help accelerate OR environmental cleanup and restoration, and it is clear to me that proceeding with the proposed plan to develop and utilize the EMDF will allow continued progress on environmental cleanup and restoration in Oak Ridge.

Comment 172: Comment from Roger Johnson

Thank you for extending comment [sic] on the Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Waste. As stated in a recent letter to the editor in the "Oak Ridger" the actions in the proposed plan breach the agreement between DOE and local and state government over the use and management and recompense to local governments for DOE's occupation of the Federal reservation in Oak Ridge. The requirements for this landfill under the superfund are less adequate than our own county landfill and is proposed in geological formations that are not as stable and subject to water as currently available waste repositories in the western United States. A lower cost is not a factor to ignore and evict the long term safety, health, water quality and economic future of this area. The cost benefit ratio is negative on the above points of safety, health, water quality and future economic viability [sic] and attractiveness to this region. The State of Tennessee still has issues they are not happy with. Oak Ridge, Anderson and Roane Counties have not been offered any compensation or in-lieu of tax payments for positing this landfill in Tennessee versus the western alternatives that already exist.

Comment 173: Comment from A. Harriet McCurdy

I am currently a resident of Oak Ridge, and I attended an information session about the planned landfill at the Heritage Center. That evening I was impressed by comments that pointed out how limited the information was about how the landfill would be operated. I have since learned that the proposed site is on land that has yet to be contaminated. Aren't there contaminated sites that could be used?

My father was among the early workers in Oak Ridge, as he came in 1943. He died of a rare form of cancer that was so linked to that early work that his medical expenses were covered by the Department of Labor. He worked his entire live in the development of peaceful uses of nuclear energy and reactor design and development. In all the best ways, he was an engineer.

I am writing to call your attention to a well written position on the current discussion. I certainly do not oppose the current cleanup of the old plant sites, but I would like the powers that be to reconsider this proposed location.

I have attached a letter [see Comment 28] that says better than I can why I believe that DOE needs to reconsider its current location for the landfill. While I do not support military solutions to problems, I know all too well how that is the first option considered by my country. Please give equal consideration to the natural world and do not locate this planned landfill on "green" land.

Thank you for opening this process up to citizen comment.

Comment 174: Comment from the Southern Environmental Law Center

Please find attached [see below] comments submitted on behalf of the Southern Environmental Law Center, the Advocates for the Oak Ridge Reservation, the Tennessee Chapter of the Sierra Club, and Tennessee Citizens for Wilderness Planning. Attachments to the letter are available at the following ShareFile link: <https://southernenvironment.sharefile.com/d-sa90ed36f6de48079>.

Thank you for the opportunity to comment on the Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act Waste (the Proposed Plan).¹ Because the U.S. Department of Energy's decision to tarnish existing greenfields by constructing a new landfill for its hazardous and radioactive waste² could have substantial long-term effects on the communities near and downstream from the Oak Ridge Reservation, the Southern Environmental Law Center, Advocates for the Oak Ridge Reservation, the Tennessee Chapter of the Sierra Club, and Tennessee Citizens for Wilderness Planning raise the following concerns:

- (1) The Central Bear Creek Valley location is not an "onsite" location as contemplated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and therefore the Department must comply with the permitting requirements of all applicable local, state, and federal laws.
- (2) Even if the proposed landfill were "onsite," the Department must provide meaningful opportunity for public comment and therefore must provide comment periods after the Department concludes its characterization of the proposed landfill location and again when the Department seeks to obtain the necessary regulatory waivers.

I. The Department must comply with all applicable local, state, and federal permitting requirements because the proposed landfill location in Central Bear Creek Valley is not "onsite" under CERCLA.

The Department has incorrectly identified its proposed landfill location as "onsite,"³ which would imply that the Department need not comply with federal, state, and local permit requirements.⁴ However, the proposed landfill location would not be "onsite" as contemplated by CERCLA.

The U.S. Environmental Protection Agency (EPA) defines "onsite" as "the areal extent of contamination and all suitable areas *in very close proximity* to the contamination *necessary* for implementation of the response action"⁵ and has rejected an interpretation that the bounds of legal ownership or the CERCLA definition of "facility"⁶ should determine whether a location is "onsite."⁷

Rather than being "in very close proximity" to the contamination, the Department's Proposed Plan would allow the construction of a landfill at a location that is (1) currently designated for recreational and future unrestricted use;⁸ (2) located approximately 1.3 miles from the Oak Ridge National Laboratory, 3.9 miles from the East Tennessee Technology Park, and 2 miles from the Y-12 National Security Complex;⁹ and (3) located, by contrast, approximately 0.8 miles from a residential area, the Country Club Estates.¹⁰ Moreover, the Advocates for the Oak Ridge Reservation¹¹ and the State of Tennessee¹² have raised concerns that the proposed landfill location would not be suitable (or at least has not been proven suitable) to remediate and provide a permanent solution for the CERCLA waste at Oak Ridge Reservation.

Therefore, because the proposed landfill location would not be "onsite" as contemplated by CERCLA, the Department must comply with the permitting requirements of federal, state, and local law prior to issuing a record of decision and prior to constructing the proposed landfill.¹³

II. Even if the proposed landfill were “onsite,” the Department must provide meaningful opportunities for public comment when the Department concludes its characterization of the proposed landfill location and again when it seeks to obtain all necessary regulatory waivers.

Even if the proposed landfill were “onsite” within the meaning of CERCLA, the Department has not satisfied its obligation to provide for meaningful opportunity for public comment. Under CERCLA, the Department must provide sufficient information to the public so concerned citizens have a meaningful opportunity to comment.¹⁴ Prior to finalizing a record of decision on the Proposed Plan, the Department must offer a meaningful opportunity for public comment, which must include all relevant information about the proposed landfill location and the Department’s regulatory obligations. As the Department itself recognizes in the Proposed Plan, there are significant informational gaps, including an unfinished characterization of the proposed landfill location¹⁵ and proposed waivers for three applicable or relevant and appropriate requirements (ARARs) from the Toxic Substances Control Act and Tennessee law.¹⁶ Therefore, the Department must reopen the public comment period both (1) if and when it finishes characterizing the proposed landfill location and (2) if and when it seeks to obtain regulatory waivers.¹⁷

CONCLUSION

The Department must not cut out public involvement or seek to use an inapplicable regulatory process when planning to construct a new hazardous and radioactive waste site in a currently uncontaminated greenfield at the Oak Ridge Reservation.

Based on the concerns raised above, we ask that before seeking to finalize a record of decision on the Proposed Plan, the Department (1) obtain all applicable federal, state, and local permits; and (2) provide meaningful opportunities for public comment when the public receives sufficient information about the characterization of the proposed landfill location and the Department’s regulatory obligations.

¹ Att. 1, U.S. Dep’t of Energy, *Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act Waste* (Sept. 2018) [hereinafter “Proposed Plan”]; Att. 2, U.S. Dep’t of Energy, *EMDF Public Comment Period Ends*, Dec. 10, 2018, <https://www.energy.gov/orem/events/emdf-public-comment-period-ends>.

² Proposed Plan, at 5–6.

³ *Id.* at 8–9.

⁴ 42 U.S.C. § 9621(e)(1); 40 C.F.R. § 300.440.

⁵ 40 C.F.R. § 300.5 (emphasis added). See Att. 3, EPA, National Oil and Hazardous Substances Pollution Contingency Plan, 53 Fed. Reg. 51,394-01, 51,406 (Dec. 21, 1988) (giving examples of locations that may be considered “onsite”).

⁶ 42 U.S.C. § 9601(9); 40 C.F.R. § 300.5.

⁷ *In re U.S. Dep’t of Energy*, No. RCRA-10-99-0106, 2000 WL 341006, at *9 (EPA ALJ Feb. 9, 2000). See Att. 4, EPA, National Priorities List, 83 Fed. Reg. 46,408, 46,409 (Sept. 13, 2018) (“[W]here there are uncontaminated parts of the identified property, they may not be, strictly speaking, part of the ‘site.’”).

⁸ Proposed Plan, at 26 (explaining that the preferred alternative will require a change from existing recreational designation to “DOE-industrial use designation”).

⁹ *Id.* at 7, fig. 3. We calculated this approximate distance using Figure 3’s scale.

¹⁰ *Id.* at 24.

¹¹ Att. 5, Comments from Virginia H. Dale, Advocates for the Oak Ridge Reservation, to John Michael Japp, U.S. Dep’t of Energy, Dec. 3, 2018.

¹² Proposed Plan, at 21–23. See Attachment A: TDEC Comments in Att. 6, Letter from Randy Young, Tenn. Dep’t Env’t. & Conservation, to John Michael Japp, U.S. Dep’t of Energy, Feb. 1, 2018.

¹³ See Proposed Plan, at 16 (describing requirements applicable to offsite disposal).

¹⁴ 42 U.S.C. § 9617(a); 40 C.F.R. § 300.430(f)(3).

¹⁵ Proposed Plan, at 6, 21.

¹⁶ *Id.* at 18.

¹⁷ 40 C.F.R. § 300.430(f)(3)(ii)(B)

Comment 175: Comment from Carol Plasil

From what I have learned recently, I believe that the Proposed Plan is detrimental to the health and safety of Oak Ridge and believe that the Department of Energy should ship the contaminated materials, etc. to a site where it is "wanted". Oak Ridge should not use a "Greenfield" to store these materials.

Comment 176: Comment from Fran Pisano, MD FAAP

I am writing to voice my **strong opposition** to the proposed landfill on Oak Ridge Reservation being contemplated by DOE. I am a pediatrician living and working in Oak Ridge, and have lived here for 23 years. My reasons are as follows:

1) The current conditions are such that there is no guarantee that the radioactive waste and heavy metals will not seep into the ground water, and ultimately our drinking water. While I realize that Oak Ridge's water comes from the East side of Oak Ridge, other communities down stream from us take their water that they give to their children (many of whom are my patients).

According to your document at <https://doeic.science.energy.gov/uploads/A.0100.030.2596.pdf>, the landfill will have predominantly the following sources of radioactive material:

a) **Cesium 137** which according to a Stanford University study reports that: Its half-life of about 30 years is long enough that objects and regions contaminated by cesium-137 remain dangerous to humans for a generation or more, but it is short enough to ensure that even relatively small quantities of cesium-137 release dangerous doses of radiation (its specific radioactivity is 3.2×10^{12} Bq/g). [2-4] (<http://large.stanford.edu/courses/2012/ph241/wessells1/>)

b) **Uranium -234** which will remain hazardous for thousands of years due to its [sic] half life of 75,400 years!

c) **Strontium-90** which if ingested is teratogenic, with studies showing increased rates of leukemia and skin cancers. (<https://www.dhss.delaware.gov/dph/files/strontiumfaq.pdf>)

These are the major radioactive materials that can seep into ground water! And does not include the heavy metals of lead, mercury, beryllium, chromium and uranium! Perhaps Oak Ridge can gain the notoriety of Flint, Michigan for contamination of our water supply.

2) The landfill does not meet the requirements of landfills within a municipality. I am a pediatrician in Oak Ridge. Daily I meet families that opt out of living here because of the concerns of contamination of the environment. This landfill, with its [sic] proximity to some of the nicest housing in the city, will not help this issue. Please protect our home values.

3) There are DOE sites that are more appropriate to the waste generated by DOE and ORNL that are willing to take the waste. According to Virginia Dale's [sic], PHD, retired corporate fellow at ORNL and chair of the Advocates for the Oak Ridge Reservation, DOE sites in the western part of the US are willing to take this waste. They do not have the ground water issues the site on OR Reservation has [sic], so please allow them to service this important issue.

4) Previous landfills have been mismanaged on DOE land, and that is why the need for a new one exists. How can we be assured there will be monitoring of ground water and the landfill in general. And when this one is full, there will likely be a need for another?

I recognize the important role economically DOE has been in Oak Ridge. I STRONGLY URGE YOU TO STOP THIS LAND FULL [sic] and protect all residents (human, animal and plant) living in this beautiful area.

Comment 177: Comment from George Proios

1. Could you please provide specifications for the geo-membrane proposed to be used, i.e, its composition, thickness, and if heat seams or other methods will be used to attach the various layers that will be used.
2. The diagram does not indicate any leachate collection system. Is one going to be installed.? [sic]
3. What is the rate of percolation expected through the various clay lenses? Who is verifying the actual composition of the types of clay to be used and their permeability rates?
4. What exactly are the types and volume of hazardous wastes that will be deposited here? Are any caustic or acidic materials expected to be dumped which may affect the integrity of the membrane liner?
5. How many geo-probes will be installed between the landfill and the river to verify the integrity of the barriers?

Comment 178: Comment from John E. Mrochek, PhD

I am a retired ORNL scientist who has lived in Oak Ridge for 45 years (currently in Knoxville). I strongly favor landfill disposal of radioactive waste. I shudder to think of the road hazards faced by the motoring public if such wastes are transported over the nation's road system! It is unthinkable to even think of exposing the motoring public to the increased dangers that this traffic would bring their travel!

Comment 179: Comment from Leonard Vaughen

I am emailing to express the following concerns about the DOE hazardous waste site proposal.

The DOE Proposal does not specify how much mercury will be stored there permanently, but any amount stored 'forever' is a ground-water contamination risk.

Other sites in the country have been constructed for this purpose and should be used accordingly for this need.

Oak Ridge is currently looking at TVA's proposal to make Bull Run Steam Plant site a hazardous coal-ash land fill, another groundwater contamination risk.

Oak Ridge should not be everyone's dumping ground. I urge you to proceed with other options than using Oak Ridge as a storage site.

Comment 180: Comment from Joel Fairstein

As a longtime Oak Ridge resident, I am concerned that the DOE is rushing into hazardous waste disposal here that could jeopardize the health of our community. Please adhere to our state's guidelines before proceeding any further.

Comment 181: Comment from Eileen Neiler

I have enclosed the item from The Oak Ridger because Virginia Dale has said it much better than I [see Comment #28]. I have lived in Oak Ridge since Aug 1953 and over the years I have noticed how the Fed gov [sic] has increasingly down-graded Oak Ridge. We get second or third-class treatment. We have gotten "un-listed" [sic] for home sites for new employees. In the past the western plant locations were always at the top of the list.

Please help us continue to be a place that people feel secure in, a place where people WANT to be.

P.S. Would you want to live next to a nuclear dump?

Comment 182: Comment from Donald Richard Miller

Oak Ridge residents are not treated like the citizens of other states.

In 1983, The Department of Energy (DOE) had regulated its own waste management and disposal operations throughout the Cold War. Then in 1984 a suit was filed by Oak Ridge residents that resulted in the United States District Court ruling that DOE must comply with environmental laws.

Within a few years, DOE established a nation-wide Environmental Management Program that took extraordinary measures to clean up cold war facilities. Rocky Flats outside of Denver, Colo. has been razed and is clean enough for the property to be sold to the public. DOE is spending billions on the 177 million-gallon tanks at Hanford in Washington State, working constantly to satisfy the state regulators.

But, Oak Ridge and Anderson County residents are not treated like the citizens of other states. DOE is proposing to dispose of legacy waste with radioactive and mercury contamination by the least costly method. Rather than complying with environmental regulations, the DOE has entered into a formal Dispute Resolution Agreement with the Tennessee Department of Environment and Conservation (TDEC). If the DOE refuses to follow the minimum environmental regulations, there is no guarantee of public safety.

The major points of disagreement between DOE and TDEC are: 1) site characterization data are not included in the Record of Decision making it impossible for the State to judge the safety of the proposal disposal facility; 2) DOE has asked TDEC to grant exceptions from safe waste disposal requirements – DOE is proceeding as if these exceptions have been granted; 3) DOE is attempting to gain approval of their plan before completing several required assessments and technical studies; 4) DOE has not yet established strict waste acceptance criteria to limit or eliminate mercury disposal thus preventing further contamination of fish and the ecosystem in nearby streams and creeks; and 5) DOE has not yet established water discharge limits in compliance with the Clean Water Act nor included these limits in the Proposed Plan.

Alternatives to disposing of more hazardous and radioactive waste in our area must be considered carefully such as shipping the waste to a disposal site in the Utah desert away from wet conditions and the public. As more cost saving reductions in managed Oak Ridge work sites occurs [sic] by releasing more acres each year to non-government use, and the population increases, each acre of land in a green field state becomes more valuable. Also, each already permanently contaminated acre will eventually be in the hands of local governments, thus a cost to tax payers for protection. The burden of responsibility for what is written in future history book chapters about Manhattan Project activity can be framed now.

Comment 183: Comment from James D. Harless

It is my understanding you and/or county/city are reviewing citizen comments regarding more waste disposal in Oak Ridge soils and karst underground along with our Tennessee high amounts of rainfall, high amounts of groundwater and substantial surface water presence in Oak Ridge and in Tennessee generally [sic]. I have the impression, you may propose it short of proper characterization of wastes or total site evaluations that apply to such disposal. Your primary reason appears to be a low cost option, compared to DOE to more safely dispose by shipping hazardous and Radioactive wastes to disposal out west where rainfall and groundwater and surface water is very minimal for possible other sites [sic]. DOE on site contamination has been present inside the Oak Ridge Reservation for decades now, speaking generally from memory.

I worked a career in environmental health and environmental protection from 1967 to 2011, in Georgia, Oak Ridge City, Superfund Environmental Group UT MTAS and for TDEC DOE Environmental Monitoring program Oversight based OR location, all ORR plant sites on site and off site oversight work until my retirement in 2011. From my work in statewide Superfund programs it became evident that a very large portion of even our non hazardous landfills in Tennessee seem to leak, fail, and spread contamination off site in ways that might under circumstances bring harm to Tennessee citizens. High rainfall locations simply have higher risk considerations. My point is higher percent of hazardous waste and/or radioactive wastes pose still even greater environmental risk of seepage or leakage to off site populations. I would encourage high quality characterization of wastes and serious consideration to off site disposal in more safe site where waste contamination to groundwater or to surface water is less risk to the environment and to human health.

My Oak Ridge residence since 1974 would bring me immediate concern for any industry to select the low cost option for environmental disposal as my career impression is the low cost option is very frequently the option that least considers the point that the environment and the public health protection are critical to progressive management and the protection of environmental resources and human health long term. I am sure you and your peers and management would prefer safe disposal that will not cause future risk to the very Tennessee residents who have supported DOE missions since Wartime missions arrived to what is today the City of Oak Ridge.

Comment 184: Comment from M. J. Lorenzen

I do not live in Oak Ridge, I live in Rocky Top. I am not from Tennessee. I moved to this area because in my travels it was one of the most beautiful places I had seen. I planned on spending the rest of my life here, but the prospect of living so near more hazardous waste is making me rethink my retirement plans. Please don't support an action that will change peoples [sic] minds about relocating their homes and businesses to this area.

Comment 185: Comment from John Kubarewicz

I am a retired engineer who has lived in Oak Ridge for close to 30 years. Until last spring I worked in the DOE Environmental Cleanup program and am very familiar with groundwater conditions, waste disposal and the rigor of the evaluations performed on cleanup alternatives. I strongly support onsite landfill disposal of high volume low level contaminated wastes and offsite disposal of low volume highly contaminated wastes as the best alternative to minimize risks to human health and the environment and cost effectively utilize limited cleanup funding. I am convinced that the proposed site and conceptual design will provide long term protection to the public and environment. As a homeowner I have no concerns about negative impacts on Oak Ridge or home values and believe that others that have raised this concern do not understand that the proposed disposal is a fraction of what has already been disposed in burial grounds on the Oak Ridge Reservation.

Comment 186: Comment from Colin Loring

I'd like to add my voice to the many speaking out in opposition to DOE placing a hazardous waste landfill for contaminated Y-12 debris in our community.

As a citizen, and retired USDA soil conservationist/geologist with concerns for the health and safety of the people in Oak Ridge, I support TDEC and other scientists and medical field experts whose testimony is a now a matter of record, in stating this material should be shipped to a suitable disposal area, already in existence such as the one on Utah.

Comment 187: Comment from Lauren Miles

As a native Oak Ridge resident, I want to voice my opinion that I am against the preposed [sic] nuclear waste landfill in Oak Ridge. Our hydrology is not suited for correct and safe management of nuclear waste in perpetuity, nor do I want a Superfund site created near miles [sic] from where residents are living.

Comment 188: Comment from Charlie Woody, President Knoxville Building & Construction Trades

The Knoxville Building & Construction Trades council is pleased to submit its comments regarding the Environmental Management Disposal Facility (EMDF) proposed for construction on the Department of Energy's Oak Ridge Reservation.

EMDF is an essential component of continued successful cleanup of the Oak Ridge Reservation. The current Environmental management Waste Management Facility (EMWFM), which recently opened its final disposal cell, will reach capacity before cleanup of the Reservation can be completed. Without the availability of dedicated haul roads and secure on-site disposal, DOE would be forced to send hundreds of millions of pounds of waste to repositories across the country, increasing costs and slowing cleanup.

Based on the impressive record of safe and responsible cleanup of the Reservation to date – including the 16-year safe and secure operational history of the existing Environmental Management Waste Management Facility (EMWMF) – there should be little question that EMDF can be built and operated without concerns about worker and public safety or threats to the environment.

The alternative to EMDF is shipping the low-level waste across country for off-site disposal. In addition to being less safe and more costly, offsite disposal would also threaten local jobs associated with constructing and operating an onsite facility, resulting in an adverse impact to our local economy. These jobs will move to other areas of the country.

Finally, our union stands ready to provide the highly qualified workers needed to construct the new disposal facility in a safe and timely manner that meets all DOE and regulatory requirements. The jobs that will be created in building the EMDF are important to our members and to the region as a whole.

The Knoxville Building & Construction Trades Council wishes to go on record with its wholehearted support for construction and operation of the new EMDF facility. We are firmly convinced it is in the best interests of the DOE cleanup program, the local economy, community safety and the environment and, importantly, the American taxpayer.

Comment 189: Comment from Mike Thompson, President Atomic Trades & Labor Council

The Atomic Trades and Labor Council (ATLC) is pleased to submit its views concerning the proposed Environmental Management Disposal Facility (EMDF).

Simply put, the Department of Energy's (DOE) approach to future disposal of low-level waste from the Oak Ridge Reservation cleanup program boils down to a choice between on-site or offsite disposal locations. The fact is a combination of the two approaches is needed to ensure safe, timely and compliant cleanup continues.

DOE's experience with the existing onsite Environmental Management Waste Management Facility (EMWMF) over nearly two decades has proven beyond doubt that this kind of facility can be operated safely and compliantly. As EMWMF nears its capacity, we fully support construction and operation of the proposed Environmental Management Disposal Facility (EMDF).

During its years of operation, EMWMF has operated safely and without incident and in full compliance with all applicable environmental regulations. As part of a cohesive "waste factory" approach, EMWMF has been a catalyst in a streamlined system that includes dedicated haul roads and thousands of safe shipments of demolition waste from the largest cleanup effort ever undertaken in the DOE complex.

This approach has ensured safe and secure waste disposal, saved money compared to offsite disposal options, created and maintained local jobs, and provided an efficient resource to support timely cleanup of the East Tennessee Technology Park.

We recognize and support the fact that some wastes require offsite disposal because they do not meet the criteria for onsite disposal. In fact, using EMWMF as an example, approximately 95 percent of the volume of waste associated with cleanup to date has gone into EMWMF, with five percent of the volume being disposed of offsite. Only 15 percent of the radioactive curie content has been disposed of at EMWMF while 85 percent of the radioactivity has been disposed of off site. That proportionate ratio offers the best of all worlds and creates a win/win situation for DOE and the local community.

While some offsite disposal is needed and preferable, dependence on offsite disposal alone increases the possibility of significant impacts to the success, cost and timeliness of the overall DOE cleanup mission. According to some estimates, without adequate onsite disposal, the price of cleanup goes up -- perhaps double. Offsite disposal slows the pace of cleanup, increasing costs associated with ongoing surveillance and maintenance programs and other related activities.

Finally, onsite storage creates more jobs that benefit the local economy. From design and engineering to disposal cell construction to two decades of operation and years more of postdisposal care, many hundreds of well-paying local jobs will result. Members of the ATLC are highly qualified to fill many of these positions, both in construction and operation of the new facility. This welcome boost to local employment can play an important part in the future wellbeing of our families and the region as a whole.

The Atomic Trades and Labor Council strongly endorses construction and operation of the proposed Environmental Management Disposal Facility.

Comment 190: Comment from Chris Miles

As the current nuclear waste landfill proposal stands, too much mercury will be released into the watershed. I am against having the landfill in Oak Ridge and am for the offsite disposal of the waste out west where it is drier.

Comment 191: Comment from Hedley and Dale Pelletier

We own our home and pay taxes in Oak Ridge TN. We have two high schoolers [sic] attending Oak RIDGE High School. We do NOT want this Nuclear/Mercury Hazardous Waste Site located in Oak Ridge.

Some reasons:

1. It would be TOO close to residences in West Oak Ridge. Families in West Oak Ridge & Scarboro neighborhood do not need this contamination seeping into soil or well water.
2. Aunts, moms, grandmoms in Oak Ridge already have a higher rate of breast cancer. Out of the 5 houses on our Cul de sac, 5 women have been treated for breast cancer! We are concerned about our health. I am the only woman not affected, yet. I have a mammogram on Monday.

3. The US Government built Y12 on Oak Ridge land for suitable SECRECY reasons, not waste disposal reasons. East TN/Appalachian Mountain region geology is NOT land that is suitable for nuclear or mercury waste disposal. The presence of abundant surface and subsurface water requires significant engineering effort to manage, both through the operating period and after closure, relying on diversion structures, gravel drains, pipes, liners and caps, that can be expected to fail in the long term, with a life expectancy only of decades. Five feet of rainfall is the norm, and a warming climate is projected to result in every [sic] increasing rainfall.

4. Utah is willing and wanting to take this waste at their appropriate waste site. This is our Nation's waste, for the defense of our country, and to help end WW2. It is not just Oak Ridge's waste. Western states are more geologically stable for waste storage.

5. The local Sierra Club and various PhD scientist have informed us at County Commission Meetings of trust issues with this DOE plan. Looking more closely at the regulations, they are correct: "This [DOE] plan wouldn't get you a permit for a normal landfill, let alone a toxic waste landfill [without a CERCLA Superfund exemption]." It is a bad move for Oak Ridge and Tennessee.

Please take our concerns seriously. We will not have DOE abuse our fellow residents or wildlife.

Comment 192: Comment from Todd Waterman

There is far too much public confusion on this controversial landfill. The DOE has withheld vital information on what wastes the landfill would actually contain, seeking approval before establishing waste acceptance criteria; exaggerated the costs and hazards of shipping it to existing DOE hazardous waste landfills like the one in Utah's salt desert; and scheduled a hearing the day after the election, when our lawmakers, our most concerned citizens, and the media were sure to be exhausted by the campaigns and too preoccupied to have properly researched the issue. The Anderson County Commission's belated awareness of the landfill issue is proof of that.

As a non-scientist, I'm struck that the scientists best qualified to understand DOE's EMDF proposal are those most skeptical of DOE's ability to properly and responsibly plan and manage this landfill despite clearly having inadequately planned and mismanaged the WMDMF. Those scientists include renowned retired Tennessee Department of Environment and Conservation (TDEC) groundwater contamination expert and triple PhD Sid Jones; his fellow TDEC retiree Dale Rector; retired ORNL hazardous waste expert Ellen Smith (also of Oak Ridge City Council); Robert G. Kennedy and fellow members of the Oak Ridge Environmental Quality Advisory Board (EQAB); prominent retired ORNL climate scientist and Nobel Laureate Virginia Dale; retired ORNL nuclear waste disposal expert Jan Berry; Sierra Club Tennessee Environmental Chair and retired DOE scientist Axel Ringe; and others.

Those scientists are joined in their criticism of the EMDF plan by TDEC itself, which is demanding DOE address seven issues with the current plan before it will grant a permit for it; long-time SOCM and Sierra Club environmental attorney Brian Paddock; prominent City of Oak Ridge officials; City Council Members; and several Anderson County Commissioners. They and many others of us believe unless DOE can adequately address our many valid concerns, much if not all of the contaminated waste should be shipped to DOE's existing Western landfills, where it would

a) be welcome

b) be far away from populated areas

c) be much less likely to contaminate groundwater, and

d) require much less monitoring and maintenance thanks to the arid conditions there.

Remedial CERCLA Actions are required to "use permanent solutions and treatment technologies *to the maximum extent possible*." The Feasibility Study's Balancing Criteria require "*long-term effectiveness and permanence*." "Permanent" means forever, as David Adler acknowledges. Over time, the unlikely becomes inevitable. Over time, EMDF's plastic and clay liners are certain to fail, particularly with their drain piercings. Tests show plastic liners are unlikely to last more than decades, even without earthquakes. And the Bear Creek Valley's high water table, high rainfall, floods, earthquakes, and karst all make it very vulnerable to potentially irreversible and/or costly environmental damage. No one can argue that DOE's arid Western hazardous waste landfills are less vulnerable, more permanently suitable locations. Thus CERCLA Remedy Selection requires DOE identify that maximally permanent solution as its "preferred alternative."

The EMDF proposal has not met CERCLA's Modifying Criteria of either "state [TDEC] acceptance" or "community acceptance." Indeed, local citizens' opposition to the proposal seems limited only by how aware of it they are and how well they understand the threat it poses to our environment, our reputation, our property values, and our ability to attract new business and jobs. In contrast, community acceptance is virtually guaranteed for DOE's Western landfills: they're asking for the hazardous waste, we're asking to be rid of it.

The far greater likelihood, and ultimate inevitability, of failures, leakage, and contamination in our wet, unstable, and vulnerable environment here versus in DOE's established Western landfills also mean much more intensive and costly monitoring over "forever" here than there, in violation of CERCLA's cost criterion. Those failures would also open up EMDF's Natural Resources Damage Trustees to costly lawsuits, the cost of which we taxpayers would bear.

Oak Ridge and DOE have made vital contributions to our region, our nation, and our world. But sadly Oak Ridge is left with a legacy of contamination and a bad reputation for contamination which negatively impacts our image and our property values. DOE thus has an obligation to its host to help it rid itself of that harmful reputation. That cannot be done by continuing to move contamination around and repackage it in this inherently vulnerable location. That can only be done by getting rid of the contamination itself. Sid Jones summed it up well:

In order to put some of the stuff they want to put here on-site, they not only need to maintain restrictions on the property but they also need to maintain the final landfill cover. There is a lot of rain to deal with, and erosion, and earthquakes. Forever is a long time, and maintenance costs on a steep slope near (or over) streams and near the water table in an active seismic zone and right next to a town have just got to be a lot more than in the desert. Pulling contaminated buildings down and burying the material without adequate waste characterization and separation and without proper assessment of future risks is how you *make* a Superfund site, not how you clean one up.

Comment 193: Comment from Harold R. Waddle

Hello! I've been an Oak Ridge resident for more than 20 years and I love living in this city! I have worked at all 3 major government sites over the last 40 years! As a citizen of Oak Ridge where I plan to retire in a year, I want it to be a safe environment for my family and others. I know of the mercury contamination in the east fork Poplar Creek and the radioactive waste in deep wells and Watts Bar Lake! I hope you consider that Uranium and mercury, two of the largest contributors of the ground water contaminants, **should not be dumped** into this proposed landfill for many reasons! The water table is very close to the surface in the valley floor where unfortunately the EMWMF took the supposedly "fixated" waste from K-

25 (ETTP site) over the last 15 years! These contaminants should not be buried in Tennessee but shipped to Utah's Envirocare or other waste disposal site where ground water leaching is not a problem!

I appreciate your consideration of protecting our Oak Ridge ground water and waterways as landfills in this rainy climate and geography are not practical! Please do the correct thing and ship this leachable waste somewhere else where it's not a problem to the local citizens!

Comment 194: Comment from John Wrapp

With over 37 years of experience in the Department of Energy cleanup arena, I strongly support construction and operation of the proposed Environmental Management Disposal Facility (EMDF) on the Oak Ridge Reservation. Most recently, I have been the Waste Disposition Manager for UCOR responsible for dispositioning all waste generated from the cleanup of the East Tennessee Technology Park. As you are aware, this project has been extremely successful. This success, in large part, is due to the on-site disposal capabilities we currently have. Without onsite disposal capabilities, the continued cleanup success of the Oak Ridge Reservation is greatly jeopardized. Without onsite disposal capabilities, you lose control of your destiny. The risk of sending all the cleanup waste offsite is significant. Whether it's the risk assessment that concluded there would be numerous fatalities due to the extensive transportation involved or resistance from the Stakeholders involved with offsite disposal, the risks are significant. There are many considerations that need to be considered when determining whether the ~2M yd³ of waste anticipated to be generated from the Oak Ridge cleanup should be disposed of onsite or offsite. With my experience, those considerations clearly favor onsite disposal. Placing the waste in an engineered onsite disposal facility that is protective of human health and the environment is the right decision for all Stakeholders involved.

Comment 195: Comment from Ruth K. Young

Part 1: Re [sic] the Oak Ridge Hazardous Waste Landfill, I am vehemently opposed to your plans and implementation.

Having listened to the discussion of those whose business it is to understand hazardous materials because of their personal career and research, I cannot accept your proposals.

I am personally acquainted with a number of those opponents and know them to be honest as well as knowledgeable. At the moment, DOE does not have a reliable reputation.

Do Not Implement This Proposal!! Oak Ridge constantly fights the myth that we are a contaminated city. DOE's proposal for this particular landfill will only add to that myth.

Again, I am vehemently opposed and shall not accept this landfill.

Part 2: It is mind-boggling that you want to put radioactive waste in a clean greenfield. I am saying an irrevocable NO to that proposal.

You have made a decision that has not complied with a variety of legally required environmental regulations. You also are ignoring data that unarguably concludes that the proposed use of this particular area is unsuitable in multiple ways for a toxic waste site.

I demand that you drop this proposal NOW.

Comment 196: Comment from Jason Schmidt

My family recently relocated to Oak Ridge for a variety of reasons with full knowledge of our proximity to contamination. I have noticed in my short time here that the vast majority of workers and management of the affected sites (Y-12, ORNL, and ETTP) do not live in Oak Ridge. I support the DOE proposed landfill, and I humbly ask that you share with your colleagues and superiors my sincerest desire to see more of their families living in Oak Ridge supporting our schools, our city, our parks, and our people in general. Your commitment toward such action will build my confidence in the DOE commitment to safety for the proposed land fill.

Comment 197: Comment from Jan Berry

1. In *Legal Environmental Assistance Foundation v. Hodel* (1984)*, United States District Court, E.D. of Tennessee ruled that the DOE, with the Y-12 plant as the case in point, must comply with RCRA and the CWA. The actions that DOE has proposed under CERCLA and the exceptions that DOE proposes to the CERCLA's applicable requirements, do not comply with the spirit of the referenced court order, because DOE has entered into formal Dispute Resolution Agreement(s). Explain how the "Proposed Plan" complies with CERCLA as well as the supporting laws and regulations under RCRA and CWA.

*<https://law.justia.com/cases/federal/district-courts/FSupp/586/1163/1903257/>

2. Site characterization data is being collected on hydrologic conditions underlying the proposed Central Bear Creek Valley Site 7c disposal site under both wet and dry conditions. Include the all site characterization data in DOE's Proposed Plan and the conceptual design of the disposal site before the Record of Decision (ROD) is prepared.

3. ARAR identification is required by CERCLA. Requirements are established by law to protect human health and the environment. DOE has apparently, prematurely sought and been granted CD-1 from DOE Headquarters before proposed DOE exceptions to known requirements are evaluated by the TDEC and EPA Region IV. DOE must follow known requirements and procedures without exception and include these established requirements in the Proposed Plan.

4. Establishing waste acceptance criteria is essential to completing a conceptual design of the proposed facility and establish a strategy for off-site disposal. TDEC is authorized to independently verify DOE modeling. This modeling must use waste acceptance criteria as a key input. DOE must establish waste acceptance criteria and include these criteria in the Proposed Plan.

5. DOE has not yet conducted a Performance Assessment, Composite Analysis, or Preliminary Disposal Authorization Statement according to information provided during the public information meeting. DOE must assess the performance of the proposed disposal facility for radionuclides according to DOE Orders and provide this assessment to state and federal regulators before completing the Proposed Plan and entering into a ROD.

6. Mercury contamination of waste is a key concern. DOE must limit or eliminate mercury disposal to prevent further contamination of fish and the ecosystem in nearby streams and creeks. The waste acceptance criteria, discussed in comment #4, must include an analytical limit for mercury co-contamination. The methods of detection and the actions required should waste exceed the specified limit must be established. DOE must establish waste acceptance criteria for mercury.

7. DOE must comply with CERCLA and Clean Water Act laws to protect human health and the environment. DOE must establish discharge limits and include these limits in the Proposed Plan before entering into a ROD.

Comment 198: Comment from Kathryn Olsen

The planned EMDF has many worrying aspects. I believe that sending the waste out West is the best truly long-term option. I am concerned about the lack of timely communication between DOE and the City of Oak Ridge and its citizens. Neither the dates of the information sessions nor the last minute rescheduling of the public meeting were plainly published. Please extend the comment period.

Comment 199: Comment from John Houvenagle

This is to register my family's opposition to the plans to bury hazardous waste in East TN.